ROAD CONSTRUCTION PLANS
WESTMOUNT - PHASE 3
Lots 174 thru 266, Open Space Lots 267 thru 294, &
Non-Buildable Bulk Parcels E & F

GENERAL NOTES

1. Zoning: Site is being developed under the Amended 5th Edition of Subdivision and Land Regulations for R-ED.
2. Previous Department of Planning and Zoning file numbers: F-11-058, ZB-1087M, WP-11-132, WP-15-038, ECP-14-058, SP-14-008, PB 408, F-15-087, F-16-061, F-16-046, WP-15-038, WP-16-081 and the D.R.R.A. is recorded at L. 12722 F. 248.
3. Site Analysis:

OVERALL SITE

Total Area of Site: 220.64 Acres±

THIS SUBMISSION

Total Area of Site: 89.01 Acres±

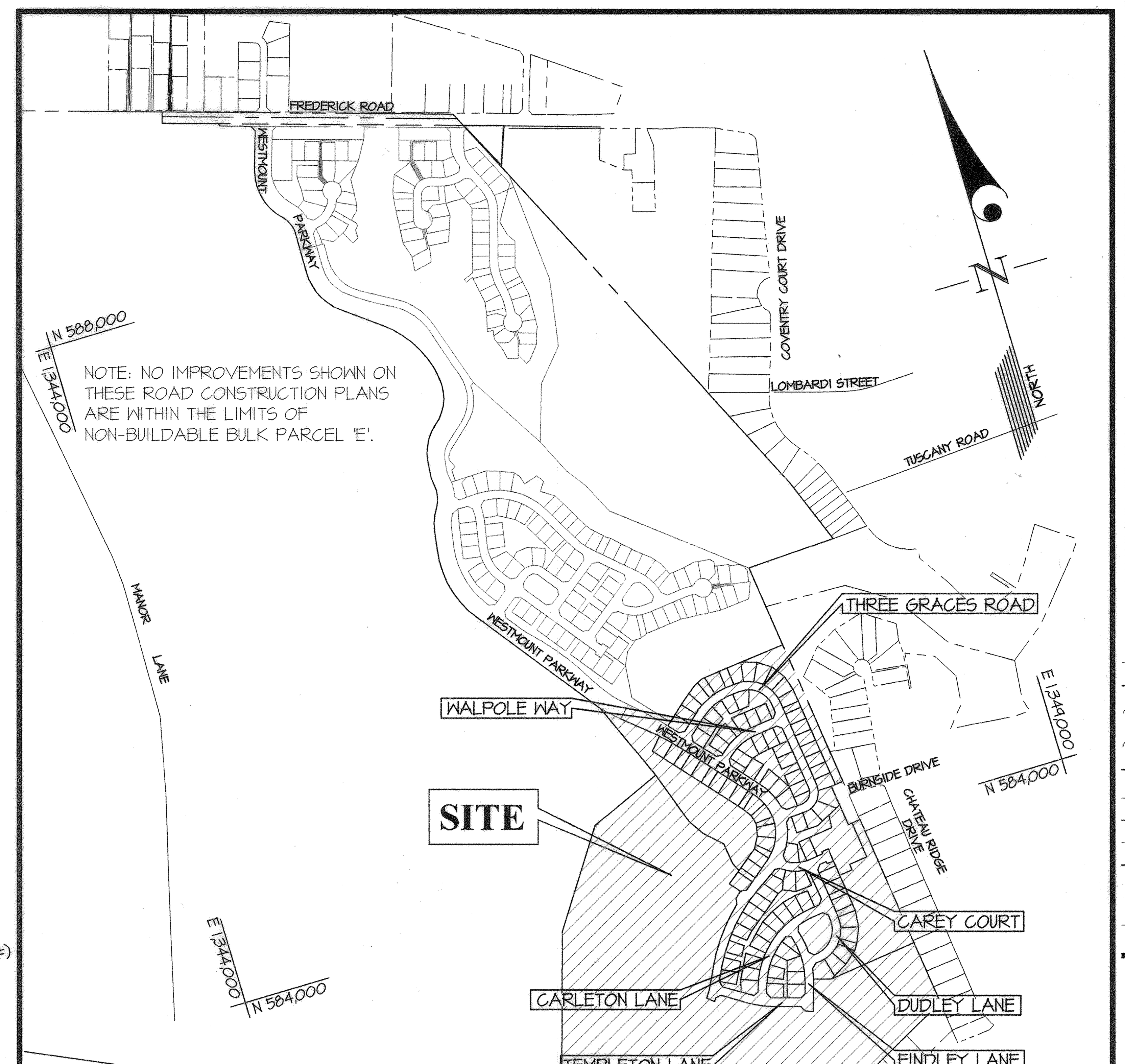
(Note: No improvements shown on these plans are within the limits of Non-Buildable Bulk Parcel 'E')

Area Being Developed:	40.64 Acres±
Number of Non-buildable Bulk Parcels	2
Area of Non-Buildable Bulk Parcels:	48.37 Acres±
Area of 100 Yr. Floodplain:	0.64 Acres
Area of Steep Slopes (outside of floodplain):	3.21 Acres±
Area of Proposed Roadway (Public):	8.95 Acres±
No. of Single Family Detached Lots:	93
Area of Single Family Detached Lots:	16.20 Acres±
No. of Single Family Attached Lots:	0
Area of Single Family Attached Lots:	0.00 Acres±
Total Number of Lots:	121
No. of Open Space Lots	28
Area of Credited Open Space:	14.172 Acres±
Area of Non-Credited Open Space	1.325 Acres±

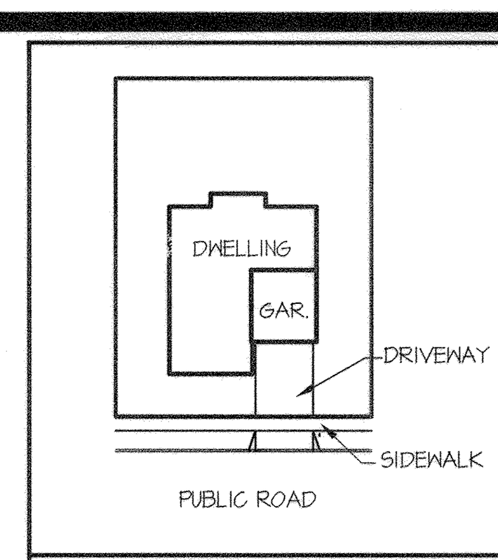
4. Total Approximate Limit of Prop. Site Disturbance: 64.1 Acres±
5. Open Space Requirements:
(Minimum Open Space Requirement for project in R-ED zoning is 50%)

Total Open Space Required:	20.32 Acres±
Total Open Space Provided:	15.497 Acres±
Recreational Open Space Required (300 s.f. per SFD lot)	0.64 Acres±
Recreational Open Space Provided:	0.77 Acres±

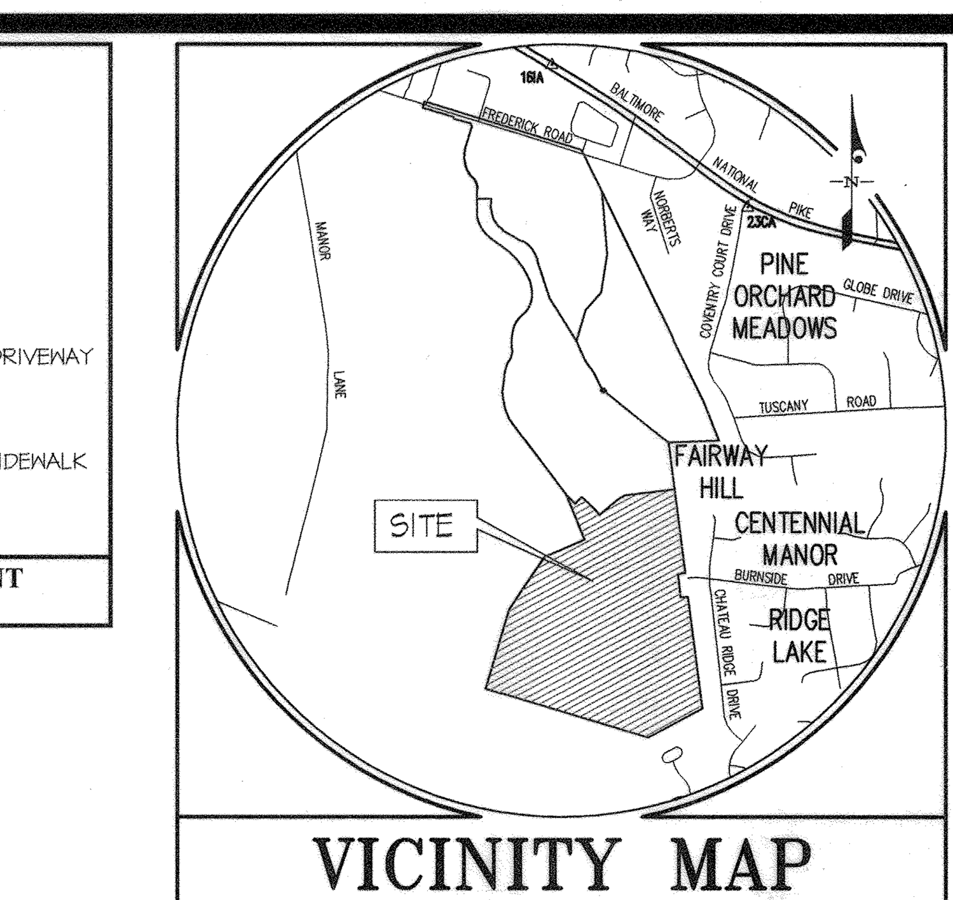
6. All construction shall be in accordance with the latest standards and specifications of Howard Count plus MSHA standards and specifications if applicable.
7. The Cemetery Inventory Map does not show any cemeteries within the project limits.
8. The Scenic Roads Map does indicate that MD Route 144A (Frederick Road) is a scenic road.
9. The Historic Sites Map does not show any historical sites within the project limits.
10. The coordinates shown hereon are based upon the Howard County Geodetic Control which is based upon the Maryland State Plane Coordinate System. Howard County Benchmarks 23CA and 161A were used for this project.
11. Boundary information is from boundary survey by Fisher, Collins & Carter on or about September, 2001.
12. Soils data was taken from the Soil Survey of Howard County, Maryland issued March, 2008.
13. Contours shown were taken from aerial topography prepared by McKenzie-Snyder during December, 2008.
14. Wetland delineation by Ecotone Inc. in a report dated February 18, 2014. The wetland and stream delineation was approved by the Howard County Department of Planning and Zoning on November 4, 2014.
15. The 100-year floodplain limits for the three streams that run through the site were determined in a floodplain study prepared by Gutschick, Little and Weber, P.A. as part of the approval of SP-14-008.
16. A Noise Study was prepared by Robert H. Vogel Engineering, Inc. on or about April, 2014 and was approved by Development Engineering Division on November 4, 2014.
17. A traffic study was prepared by The Traffic Group in a report dated April 4, 2014 and was approved by Development Engineering Division on November 4, 2014. The study was approved by SHA as part of the approval of SP 14-008, which was approved on November 4, 2014. The study addressed three phases of development with 59 single family dwelling units in Phase I (year 2017), a total of 132 single family dwelling units in Phase II (2018 design year), and the full build-out of 325 single family dwelling units by Phase III (2019 design year).
18. A partial Geo-technical Report was prepared by Hillis-Carnes in May, 2014 for the stormwater management devices within open space lots as shown on these plans. Additional Geo-technical analysis will be provided for the stormwater management devices that will be located on individual lots.
19. Existing utilities were taken from available Howard County records.
20. The project is within the Metropolitan District. ⚠2
21. Water and sewer are public per Contract No. 24-4876-D (Phase 1) 20-5167-D (Phase 3B)
24-4877-D (Phase 2) 24-5168-D (Phase 3C)
24-4878-D (Phase 3A) 24-5169-D (Phase 3D)
20-5170-D (Phase 3E)
Existing Contract Numbers: Water: 44-1311-D
Sewer: 179-S and 44-1311-D
22. The following stream buffers have been provided:
Perennial stream= 75' buffer
Intermittent stream = 50' buffer
The stream buffers are measured from the stream banks and not the centerline.
23. The contractor shall notify the Department of Public Works/Bureau of Engineering/Construction Inspection Division at (410) 313-1880 at least five (5) working days prior to the start of work.
24. The contractor shall notify "Miss Utility" at 1-800-257-7777 at least 48 hours prior to any excavation work being done.
25. Traffic control devices, markings and signing shall be in accordance with the latest edition of the Manual of Uniform Traffic Control Devices (MUTCD). Al street and regulatory signs shall be in place prior to the placement of any asphalt.
26. Stormwater management for this site is provided in accordance with Chapter 5 of the MDE Stormwater Management Design Manual, Volumes 1 and 2. Throughout the site, Micro-Bioretention (M6), Dry Wells (M5), and Sheetflow to Conservation Areas (N3) are utilized. Devices on individual lots will be owned and maintained by the homeowner and are subject to the requirements of a Declaration of Covenants. Devices that primarily treat lot runoff will be owned and maintained by the HOA. Devices that primarily treat runoff from a county road will be owned by Howard County and jointly maintained with the HOA. Within these devices, Howard County will maintain the storm drain inlets and associated piping. The HOA will be required to maintain the SWM underdrains, plants, soil, mulch, etc. The only exception is the area treated by the two Filterra devices within Open Space Lot 166, which will be owned and maintained by the HOA. See sheet 65 for table indicating SWM devices proposed per individual lot. See sheet 66 for Operations and Maintenance Schedules for the various SWM devices.
27. No grading, removal of vegetative cover or trees, paving and new structures shall be permitted within the limits of wetlands, streams or their required buffers, floodplain and forest conservation easement areas. Any disturbances to environmental features in association with SWM rip rap are recognized by DPZ as essential or necessary disturbances.
28. Open space lot 294 will contain active recreational areas in accordance with Section 16.121(a)(4) of the Subdivision Regulations (5th Edition).
29. The Forest Conservation Easement has been established to fulfill the requirements of Section 16.1200 of the Howard County Code and the Forest Conservation Act. No clearing, grading or construction is permitted within the Forest Conservation Easement, however Forest Managament Practices as defined in the Deed of Forest Conservation Easement are allowed. The requirements will be satisfied with an obligation for this subdivision as described in "Forest Conservation Obligation" shown on this sheet as well as Sheet 74.
30. Minimum building setback restrictions from public roads and property lines will be provided in accordance with the Zoning Regulations adopted July, 2006.
31. All buffering and other landscaping requirements/features will be provided at the Site Development Plan stage and/or the Final Plan Stage and will be provided in accordance with the Subdivision Regulations (Amended 5th Edition).
32. A pre-submission community meeting was held for this project on 10/01/2013 in compliance with Section 16.128 of the Regulations.
33. The project is not subject to the provisions of Moderate Income Housing Units (MIHU) based on the Developer's Rights and Responsibilities Agreement (DRRA) recorded at L. 12722 F. 248 on 9/17/2010.
34. This development shall be in accordance with all requirements established as part of the "Developer's Rights and Responsibilities Agreement" (DRRA) between Howard County and the Carrolls. Per the DRRA, the developer and DPW have agreed that a per lot fee in the amount of $3,000 will be paid at building permit stage for sewage nutrient reduction.
35. Howard County Department of Planning and Zoning has determined, in accordance with Section 16.116(c) of the subdivision and land regulations that the environmental impacts shown hereon are necessary or essential disturbances. See the approval and conditions of WP 15-038, this sheet.
36. See sheet 65 for stormwater management practice chart, narrative, and performance standards. See sheet 66 for the operations and maintenance responsibilities for the various SWM devices.
37. Traffic Control Devices:
    - 37.1. The R1-1 ("STOP" sign and the street name sign (SNS) assembly for this development must be installed before the base paving is completed.
    - 37.2. The traffic control device locations shown on the plans are approximate and must be field approved by Howard County Traffic Division (410-313-2430) prior to the installation of any of the traffic control devices.
    - 37.3. All traffic devices and their locations shall be in accordance with the 2011 edition of the "Maryland Manual on Uniform Traffic Control Devices" (MdMUTCD).
    - 37.4. All sign posts used for traffic control signs installed in the County Right-of-Way shall be mounted on a 2" galvanized steel, perforated ("Quick Punch"), square tube post (14 gauge) inserted into a 2-1/2" galvanized steel, perforated, square tube sleeve (12 gauge) - 3' long. The anchor shall not extend more than two "Quick Punch" holes above the ground level. A galvanized steel pole cap shall be mounted on top of each post.
38. Street light placement and the type of fixture and pole shall be in accordance with the Howard County Design Manual, Volume III (2006), Section 5.5.A. A minimum of 20' shall be maintained between any street light and any tree.
39. The plan has been prepared in accordance with Section 16.124 of the Howard County Code and the Landscape Manual with 68 shade trees. A Landscape Surety in the amount of $20,400.00 will be posted with the Developer's Agreement. See sheet 15 for surety calculation.
40. On October 30, 2014, Howard County granted WP 15-038 allowing the removal of 57 (or equivalent) Specimen Trees. With the approval of this Final Plan Howard County is allowing the removal of 4 additional Specimen Trees for a total of 61 for the project. The mitigation for those 61 trees has been provided with these plans.
40. On May 20, 2018, Howard County approved the design manual waiver for Vol. III, Section 2.3.A.1.a. to reduce the minimum required road radii, subject to the following:
    1. Sight distance easements should be provided, as needed, so stopping sight distance for the corresponding design speeds will be preserved.
    2. No parking shall be permitted along the sub-standard curves. Please show signage on the plans.
    3. Due to the tight curvature, please provide a 26-foot (face of curb to face of curb) pavement width for all curvatures below 210'.
41. ⚠1 On December 6, 2019, in accordance with Section 16.116(c) the Howard County Dept. of Planning and Zoning approved a request by the developer to consider the stream mitigation work an essential disturbance. Prior to obtaining a grading permit, the developer shall obtain any applicable permits and authorizations from the Maryland Dept. of the Environment and the U.S. Army Corps of Engineers for the activities in a regulated stream.



LOCATION PLAN
SCALE: 1"=600'



TYPICAL FOOTPRINT
SCALE: 1"=60'



VICINITY MAP
SCALE: 1" = 2,000'

BENCHMARKS

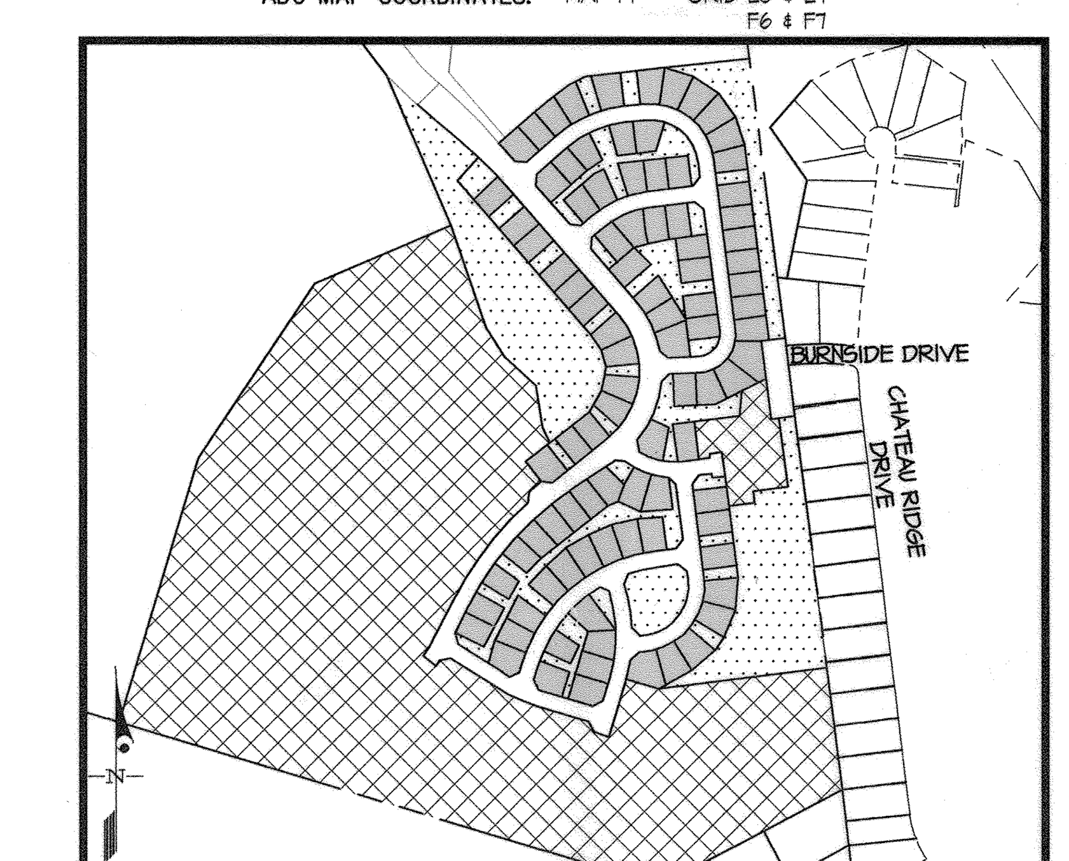
161A:	NORTHING:	589,509.413
	EASTING:	1,346,343.626
	ELEVATION:	462.92
23CA:	NORTHING:	588,035.663
	EASTING:	1,348,385.546
	ELEVATION:	482.20

ADC MAP COORDINATES: MAP 19 GRID E6 & E7 F6 & F7

SHEET INDEX

LEGEND

- 366 — EXISTING CONTOUR
- 300 — PROPOSED CONTOUR
- EXISTING TREELINE (DOES NOT MEET CRITERIA FOR A FOREST)
- LIMIT OF EXISTING FOREST
- LIMIT OF ULTIMATE FOREST
- EX. 8"S. — EXISTING SANITARY SEWER
- 8"S. — PROPOSED SANITARY SEWER
- EX. 8"W. — EXISTING WATERLINE
- 8"W. — PROPOSED WATERLINE
- PROPOSED FIRE HYDRANT
- EX. S.D. — EXISTING STORM DRAIN
- S.D. — PROPOSED STORM DRAIN
- EXISTING TREE
- PROPOSED STREET TREE
- PROPOSED SIGN
- EXISTING POST
- EXISTING POLE
- EXISTING FLAG
- EXISTING MANHOLE
- EXISTING FIRE HYDRANT
- (T.B.R.) EXISTING SIGN TO BE RELOCATED
- CONCRETE SIDEWALK
- EXISTING CURB AND GUTTER
- EXISTING EDGE OF PAVEMENT
- PROPOSED CURB AND GUTTER
- FP — FP — FP — 100 YEAR FLOODPLAIN
- LIMIT OF WETLAND
- WETLAND AREA
- WB — WB — WETLAND BUFFER
- SB — SB — STREAM BANK BUFFER
- ### — FLOODPLAIN CROSS SECTION
- OS — OPEN SPACE SIGN
- — // — // — // — PROPOSED FENCE
- FCE — FCE — FOREST CONSERVATION EASEMENT
- STREAM BANK
- CENTERLINE OF STREAM
- 25' BRL — PROPOSED BUILDING RESTRICTION LINE
- DRAINAGE DIVIDE
- SOIL TYPE BOUNDARY
- SOIL TYPE / SOIL GROUP
- SLOPES 15% TO 25%
- SLOPES GREATER THAN 25%
- — > — EARTH DIKE / CLEAN WATER DIVERSION
- — SF — SILT FENCE / SUPER SILT FENCE
- LOD — LIMIT OF DISTURBANCE
- LOS — LIMIT OF SUBMISSION
- SOIL BORING LOCATION
- ## — PROPERTY CORNER IDENTIFICATION
- LEVEL SPREADING DEVICE
- SCE — STABILIZED CONSTRUCTION ENTRANCE
- T.G.O.S. — TEMPORARY GABION OUTLET STRUCTURE
- T.S.O.S. — TEMPORARY STONE OUTLET STRUCTURE
- RAIN BARREL (M-1)
- D — DRY WELL (M-5)
- 15' — ROOFTOP DISCONNECT (N-1)
- 100' SFB — SHEET FLOW TO BUFFER (N-3)
- 20' NRD — NON-ROOFTOP DISCONNECT (N-2)
- MBR-100 — MICRO BIO-RETENTION FACILITY (M-6)
- PROPOSED (LED-150) LIGHT
- PROPOSED (LED-100) LIGHT
- LEVEL SPREADING DEVICE



▨	SINGLE FAMILY DETACHED = 16.2 AC.	□	ROAD R/W = 8.9 AC.
⁘	OPEN SPACE LOTS = 15.5 AC.	▩	NON-BUILDABLE = 48.4 AC.

LAND USE MAP SCALE: 1" = 600'

FOREST CONSERVATION OBLIGATION & SURETY (At Final Plan Stage):

THE FOREST CONSERVATION OBLIGATION FOR THIS DEVELOPMENT AS CALCULATED IN THE FOREST CONSERVATION WORKSHEET IS 23.71± ACRES OF FOREST RETENTION AND 8.52± ACRES OF REFORESTATION PLANTING FOR TOTAL OF 32.30± ACRES OF FOREST CONSERVATION EASEMENT TO BE RECORDED.

PROPOSED METHOD OF SATISFYING THE ABOVE FOREST CONSERVATION ON-SITE:
RECORD SIX (6) FOREST CONSERVATION EASEMENTS (AND OPEN SPACE LOT 2) TOTALING 27.49± ACRES OF WHICH 26.31 ACRES ARE CREDITED AND CONTAINS 23.77± ACRES OF RETENTION ON THE NET TRACT AND 2.48± ACRES OF CREDITED REFORESTATION PLANTING ON THE NET TRACT AND 0.06± ACRES OF CREDITED REFORESTATION WITHIN THE FLOODPLAIN. THE NON-CREDITED PORTION OF THE FOREST CONSERVATION EASEMENTS CONTAIN 1.18± ACRES OF NON-CREDITED RETENTION WITHIN THE FLOODPLAIN.

THE FOREST CONSERVATION SURETY POSTED WITH THE DEVELOPER AGREEMENT IS $0.50/S.F OF THE REFORESTATION PLANTING. THE SURETY FOR THE ON-SITE REFORESTATION FOR THIS PHASE WOULD BE:

REFORESTATION PROVIDED: (2.54 Ac.) (43,560 SF/Ac.) ($0.50/SF)= $55,321.20
or $55,321.00 (rounded)

TOTAL SURETY: = $55,321.00

NOTE:
1. SEE FOREST CONSERVATION TRACKING CHART ON THIS SHEET, BELOW. THERE IS A DEFICIT OF 6.94 ACRES OF REFORESTATION PLANTING THAT NEEDS TO BE PLANTED IN AN OFFSITE FOREST BANK. 5.94 ACRES WILL BE PLANTED IN AN OFFSITE BANK LOCATED AT FAIRLANE FARMS-PHASE I (SEE, F-15-054). THE REMAINING 1.00 ACRE OF REFORESTATION PLANTING WILL BE PLANTED IN AN OFFSITE BANK LOCATED AT CATTAIL CREEK (SEE, SDP-14-031).

WP 16-081

ON JANUARY 6, 2016 WP 16-081 WAS GRANTED FOR THE FOLLOWING:
- A WAIVER FROM SECTION 16.1202(A) REQUIRING THE SUBMISSION OF A FOREST CONSERVATION PLAN FOR THE ENTIRE GROSS AREA AS PART OF THE SUBDIVISION PLAN PROCESS.
- A WAIVER FROM SECTION 16.147(C) REQUIRING A PLAT TO BE SUBMITTED AT A SCALE OF 1 INCH EQUALS 100 FEET, 1 INCH EQUALS 50 FEET OR 1 INCH EQUALS 30 FEET.

THE APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:
1. THE APPLICANT MUST CONTINUE PROCESSING THE FINAL SUBDIVISION PLANS FOR ALL PHASES AND MEET ALL REQUIRED PROCESSING DEADLINE DATES IN ACCORDANCE WITH THE APPROVED APFO SCHEDULE FOR WESTMOUNT.
2. THIS APPROVAL OF THE FOREST CONSERVATION OBLIGATION REQUIREMENT IS ONLY AN ALLOWANCE TO TEMPORARILY DEFER THE RECORDATION OF FOREST CONSERVATION EASEMENTS AS A PHASED PROJECT. THE TOTAL FOREST OBLIGATION REQUIREMENTS FOR THE ENTIRE PROJECT SHALL BE ESTABLISHED AND RECORDED WITH THE LAST PHASE. THE FOREST CONSERVATION PLAN SUBMITTED WITH EACH OF THE FOUR PHASES OF THIS PROJECT SHALL ESTABLISH AND RECORD THE MINIMUM FOREST CONSERVATION EASEMENT AREA FOR EACH PHASE.
3. COMPLIANCE WITH ALL SUBDIVISION REVIEW COMMITTEE COMMENTS FOR F-15-087, F-16-046, AND F-16-061.
4. THE WAIVER PETITION NUMBER (WP-16-081) AND ITS CONDITIONS OF APPROVAL MUST BE ADDED TO ALL FUTURE SUBDIVISION PLATS AND SITE DEVELOPMENT PLANS.

NON-BUILDABLE TRACKING CHART

PARCEL	TOTAL NON-BUILDING PARCEL AREA	FILE UNDER WHICH PARCEL WAS CREATED	FILE UNDER WHICH PARCEL WAS CONVERTED	AREA CONVERTED	CONVERTED TO:	AREA REMAINING
B	2.1236	F-15-087	F-16-061	2.1236	S.F.D. LOTS	0.0000
C	141.6060	F-15-087	F-16-046	52.5977	S.F.D. LOTS, ROAD R/W & O.S. LOTS	89.0083
D	89.0083	F-16-046	F-17-001	40.6421	S.F.D. LOTS, ROAD R/W & O.S. LOTS	48.3662
E & F	48.3662	F-17-001	---	---	---	---

SITE ANALYSIS CHART

PHASE NO.	FILE REF. NO.	AREA BEING RECORDED	AREA OUTSIDE OF THIS PHASE (NON-BUILDABLE)		AREA BEING DEVELOPED THIS PHASE		FLOODPLAIN AREA (THIS PHASE)	STEEP SLOPE AREA (THIS PHASE)	NET AREA (THIS PHASE)	NON-BUILDABLE (THIS PHASE)		S.F.D. AC. (%)		ROAD R/W		CREDITED OPEN SPACE		NON-CREDITED OPEN SPACE	
			AC.	(%)	AC.	(%)	AC.	AC.	AC.	AC.	(%)	AC.	(%)	AC.	(%)	AC.	(%)	AC.	(%)
1	F 15-087	220.6430	143.7296	(65.1)	76.9134	(34.9)	17.7600	0.0000	59.1534	2.1236	N/A	9.4246	(12.3)	7.8387	(10.2)	58.8595	(76.5)	0.7906	(1.0)
2A	F 16-061	2.1236	0.0000	(0.0)	2.1236	(100.0)	0.0000	0.0000	0.0000	0.0000	N/A	2.1236	(100.0)	0.0000	(0.0)	0.0000	(0.0)	0.0000	(0.0)
2	F 16-046	141.6060	89.0083	(62.9)	52.5977	(37.1)	6.7886	4.9743	40.8348	0.0000	N/A	13.2104	(25.1)	14.6908	(27.9)	23.1980	(44.1)	1.4985	(2.9)
3	F 17-001	89.0083	48.3662	(54.3)	40.6421	(45.7)	0.6395	3.2140	36.7886	0.0000	N/A	16.1972	(39.9)	8.9480	(22.0)	14.1723	(34.9)	1.3247	(3.3)

SEE SHEETS 12 THROUGH 14 FOR THE LIMITS OF THE NON-CREDITED OPEN SPACE.

SETBACK REQUIREMENTS

SETBACK TYPE	SETBACK	SETBACK TYPE	SETBACK
PROJECT BOUNDARY	30'	SIDE (PRINCIPAL STRUCTURE)	7.5'
EXTERNAL PUBLIC R/W	75'	REAR (PRINCIPAL STRUCTURE)	25'
FRONT/SIDE ON INTERNAL PUBLIC R/W	20'		
FRONT (PRINCIPAL STRUCTURE)	20'		

LOT INFORMATION

LOT TYPE	LOTS	MINIMUM LOT SIZE	MINIMUM LOT WIDTH AT FRONT BRL
SINGLE FAMILY DETACHED	3-46,49-52, 72-153, 174-266	6,000 SQUARE FEET	50'

ACTIVE OPEN SPACE

OPEN SPACE LOT(S)	OPEN SPACE LOT AREA	TOTAL
LOT 66	0.6511	0.65 AC.
LOT 169	0.5181	1.17 AC.
LOT 294	0.7739	1.94 AC.

CREDITED OPEN SPACE

REQUIRED		PROVIDED		
			OS	ACTIVE OS
OPEN SPACE	110.32 AC.	PHASE 1	58.86	0.65
		PHASE 2A	0.00	0.00
		PHASE 2	23.20	0.52
ACTIVE OPEN SPACE	2.24 AC.	PHASE 3	14.17	0.77
		TOTAL	96.23	1.94

OVERALL DENSITY TABULATION

AREA			
GROSS		NET	
220.64 AC.		182.06 AC.	
UNITS			
REQUIRED		PROVIDED	
NO. LOTS PERMITTED PER ZONING REGULATIONS	364	PHASE 1	50
		PHASE 2A	9
		PHASE 2	73
NO. LOTS PERMITTED PER D.R.R.A.	325	PHASE 3	93
		TOTAL	225

WP 15-038

ON OCTOBER 30, 2014 WP 15-038 WAS GRANTED FOR THE FOLLOWING:
- TO ALLOW FOR THE REMOVAL OF VEGETATIVE COVER AND TREES FROM ENVIRONMENTAL AREAS (A WAIVER FROM SECTION 16.116(c) AND TO ALLOW FOR THE REMOVAL OF SPECIMEN TREES (A WAIVER FROM SECTION 16.1205(a)(7).
- A WAIVER FROM SECTION 16.121(e) WHICH REQUIRES 40' OF FRONTAGE ON A PUBLIC ROAD FOR AT LEAST ONE ACCESS TO AN OPEN SPACE LOT, WITH 20' BEING PERMISSIBLE FOR ANY ADDITIONAL ACCESS.
- A WAIVER FROM SECTION 16.119(e)(5) WHICH REQUIRES PUBLIC RIGHT-OF-WAY LINES ON CORNER LOTS AT INTERSECTIONS SHALL BE TRUNCATED BY STRAIGHT LINES JOINING POINTS 25' BACK FROM THE THEORETICAL PROPERTY LINE INTERSECTION IN EACH QUADRANT.

THE APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:
1. COMPLIANCE WITH ALL SUBDIVISION REVIEW COMMITTEE COMMENTS FOR SP-14-008.
2. THE WAIVER PETITION NUMBER (WP-15-038)AND ITS CONDITIONS OF APPROVAL MUST BE ADDED TO SP-14-008 AND ALL FUTURE SUBDIVISION PLANS.
3. AS MITIGATION FOR THE REQUESTED REMOVAL OF FIFTY-SEVEN (57) SPECIMEN TREES LOCATED WITHIN THE SITE, THE DEVELOPER IS REQUIRED TO USE 2" CALIPER PLANT MATERIALS FOR THE REQUIRED PLANTINGS WITHIN THE PROPOSED REFORESTATION PLANTING AREAS AT A MINIMUM PLANTED ADJACENT TO ALL RESIDENTIAL LOTS THROUGHOUT THE SUBDIVISION. A FINAL DETERMINATION OF THE PLANT MATERIAL SIZE AND TOTAL NUMBER OF PLANTS WILL BE REVIEWED AND FINALIZED AT THE FINAL PLAN. IF DESIGN CHANGES ARE MADE AT FINAL PLAN STAGE AND THE REFORESTATION PLANTING AREAS ARE REDUCED OR ELIMINATED, THEN THE DEVELOPER SHALL PLANT AN EQUIVALENT NUMBER OF SHADE TREES WITHIN THE RESIDENTIAL AND OPEN SPACE LOTS AND ADJACENT TO PRIORITY RETENTION AREAS. THOSE FIFTY-SEVEN (57) SHADE TREES (OR EQUIVALENT) WILL BE IN ADDITION TO AND AN ENHANCEMENT OF ANY REQUIRED PERIMETER LANDSCAPING AND SHALL BE BONDED.
4. A WAIVER TO SECTION 16.1169(c) IS NOT REQUIRED FOR THE THREE (3) STREAM CROSSINGS, THE PUBLIC UTILITY LINE EXTENSIONS AND FOR THE PATHWAY THROUGH OPEN SPACE WHICH WERE DETERMINED ESSENTIAL FOR ESSENTIAL ROAD CROSSINGS, UTILITY LINE CONNECTIONS AND PEDESTRIAN CONNECTIONS IN ACCORDANCE WITH SECTION 16.116(c) OF THE REGULATIONS.
5. THE REDUCTION OF THE MINIMUM OPEN SPACE FRONTAGE REQUIREMENTS IS ONLY FOR THOSE OPEN SPACE LOTS DEPICTED ON THE SUBMITTED WAIVER EXHIBIT WHICH PROVIDES ACCESS TO STORMWATER MANAGEMENT FACILITIES.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[illegible] 1/29/2019
Chief, Bureau of Highways — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

[illegible] 6-27-19
Chief, Division of Land Development — Date

[illegible] 6-24-19
Chief, Development Engineering Division — Date

GLW
PLANNING | ENGINEERING | SURVEYING
3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY: JRD			
DRAWN BY: LAG			
CHECKED BY: DEV	2021-03-17	⚠2 UPDATED THE CONTRACT NUMBERS ASSOCIATED WITH PHASE 3 (F17-001)	HKJ	DEV
	2020-4-22	⚠1 Rev. sheet index, pg. no. to reflect add. of stream mitigation plans, added gen. note acknowledging work to be essential disturbance & rev. address	klp	
	DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
307 International Circle, ⚠1
Suite 130
Hunt Valley, MD 21030
410-480-4480
Attn.: Robert Goodier

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975, EXPIRATION DATE: MAY 26, 2020
1/2/19 [illegible]

STATE OF MARYLAND CARLTON KENNETH GUTSCHICK NO. 12975 PROFESSIONAL ENGINEER

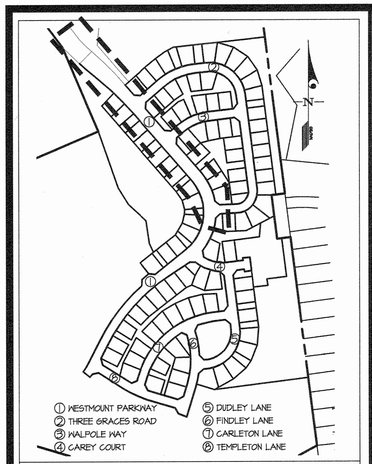
COVER SHEET
WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	R-ED	13-013
DATE	TAX MAP - GRID	SHEET ⚠1
DEC., 2018	23-6&12	1 OF 92

F 17-001

L:\CADD\DRAWINGS\13013\plans by glw\roads-sd (ph3)\13013_01_CS.dwg, PLOTTED: 1/3/2019 5:06 PM, LAST SAVED: 1/3/2019 4:49 PM, PLOTTED BY: Keith Bennett

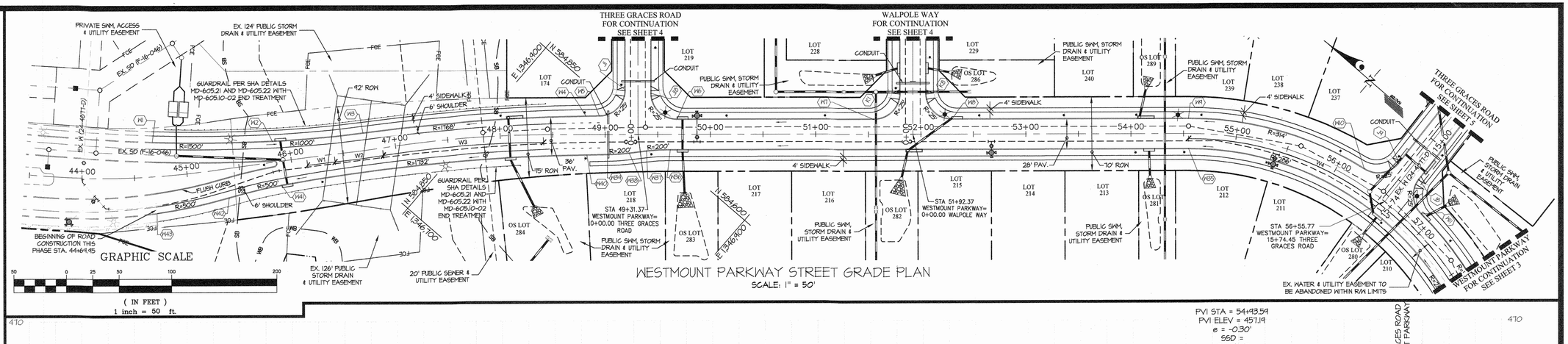


SCALE: 1" = 400'

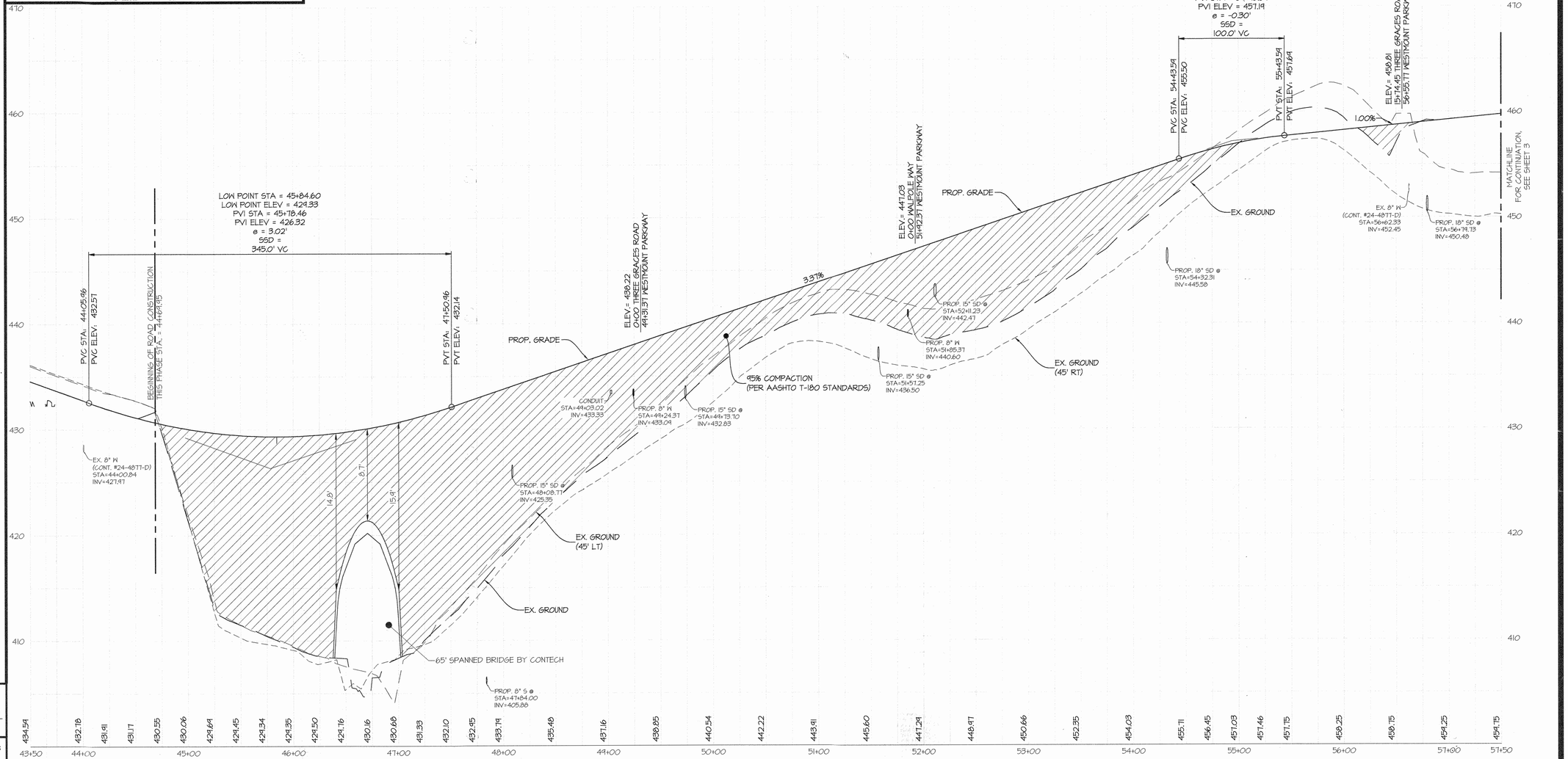
FLOW LINE ELEVATION TABLE FOR WESTMOUNT PARKWAY

PT. NO	STATION	OFFSET	ELEV.	ASBUILT
W1	44+68.45	32.26' LT	MEET EX.	
W2	45+84.61	14.39' LT	428.74	
W3	46+70.92	16.24' LT	429.54	
W4	48+82.26	17.21' LT	436.04	
W5	48+94.64	17.36' LT	436.45	
W6	49+68.31	13.92' LT	439.04	
W7	51+55.31	13.95' LT	445.35	
W8	52+29.31	13.96' LT	447.85	
W9	54+54.66	14.00' LT	455.43	
W10	56+22.98	14.00' LT	458.05	
W11	56+88.51	14.00' LT	458.71	
W12	54+54.61	14.00' RT	455.43	
W13	49+62.11	14.08' RT	438.83	
W14	49+34.36	15.36' RT	438.02	
W15	49+22.81	17.28' RT	437.41	
W16	49+02.31	18.57' RT	436.67	
W17	48+82.66	18.78' RT	436.01	
W18	45+87.78	22.34' RT	428.65	
W19	45+36.45	21.23' RT	429.79	
W20	44+68.45	34.47' RT	MEET EX.	

NOTES:
1. ALL SIDEWALKS ARE 4' WIDE UNLESS OTHERWISE NOTED.
2. ALL CURB RADII ARE 25' UNLESS OTHERWISE NOTED.
3. FOR SIGNAGE (INCLUDING NO PARKING SIGNS), STREET TREE, LANDSCAPING, AND BUFFERING REQUIREMENTS, SEE SHEETS 12-15.
4. FOR CENTERLINE CURVE DATA, SEE SHEET 9.
5. FOR STREET LIGHT SCHEDULE, SEE SHEET 15.
6. FOR TYPICAL SECTIONS, SECTION DIMENSIONS AND ROAD DETAILS, SEE SHEET 9.
7. FOR STORM DRAIN SIZING INFORMATION, SEE SHEETS 21-23.
8. ALL OF THE SEWER SHOWN IS 8" UNLESS OTHERWISE NOTED.
9. ALL OF THE SHC's SERVING NUMBERED LOTS ARE 4".
10. ALL OF THE WATER SHOWN IS 8" UNLESS OTHERWISE NOTED.
11. ALL OF THE HHC's SERVING NUMBERED LOTS ARE 1-1/2".
12. ALL CURB IS 1 7/8" HEIGHT UNLESS OTHERWISE NOTED. SEE SHEET 9 FOR CURB DETAILS.
13. CONDUIT CROSSING FOR STREET LIGHTS SHALL BE (4) 4" SCHEDULE 80 PVC, INSTALLED FLAT AT A DEPTH OF 36" WITH MARKERS ON BOTH SIDES AND WITH PULL STRINGS INSTALLED. ONE CONDUIT IS TO BE USED FOR EACH OF THE FOLLOWING: ELECTRIC, VERIZON, GAS, & CABLE.
14. ALL SIDEWALK RAMPS TYPE 'B' PER HOWARD COUNTY STANDARD DETAIL R-4.03, UNLESS OTHERWISE NOTED.



WESTMOUNT PARKWAY STREET GRADE PLAN
SCALE: 1" = 50'



WESTMOUNT PARKWAY STREET GRADE PROFILE
SCALE: HOR. 1" = 50'
VER. 1" = 5'
(R/W VARIES, MINOR COLLECTOR, PAVING WIDTH VARIES)

PROPOSED CENTERLINE (PGL)
EXISTING GRADE (PGL)
EX. B.R.L. LEFT
EX. B.R.L. RIGHT

NOTE:
ROAD CLASSIFICATION: MINOR COLLECTOR
DESIGN SPEED: 30 MPH
POSTED SPEED: 25 MPH

FOR TYPICAL ROAD SECTIONS, SEE SHEET 9.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.24.19

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3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:			
JRD			
DRAWN BY:			
LAG			
CHECKED BY:			
DEV			
DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975 EXPIRATION DATE: MAY 26, 2020

STATE OF MARYLAND — GARTON KENNETH GREGERSON — NO. 12975 — PROFESSIONAL ENGINEER

1/2/19

ROAD CONSTRUCTION PLAN & PROFILE - WESTMOUNT PARKWAY

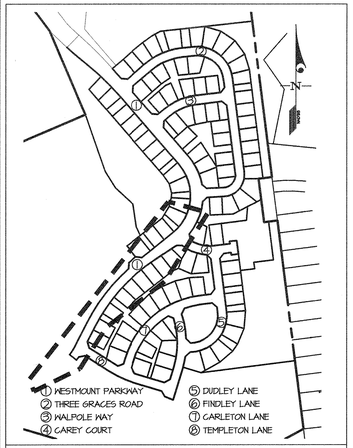
WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	2 OF 92

F 17-001

L:\CADD\DRAWINGS\1301\3\PLANS BY GLW\ROADS-SD (PH3)\1301_02-08-ROADS.dwg, 1/2/2019 2:25 PM, JEFF, XREFS: 1301_02-08-ROADS-BASE.dwg, 1301_02-08-ROADS-PROFILE.dwg, 1301_02-08-ROADS-TITLE.dwg, PLOTTED BY: Jennifer A. Eccles



SCALE: 1" = 400'

FLOW LINE ELEVATION TABLE FOR WESTMOUNT PARKWAY

PT. NO	STATION	OFFSET	ELEV.	ASBUILT
W2	58+88.35	14.00' LT	462.12	
W3	59+55.11	14.00' LT	463.38	
W4	59+72.65	14.00' LT	463.41	
W5	60+21.31	13.70' LT	464.88	
W6	61+22.61	12.26' LT	467.20	
W7	61+67.11	12.61' LT	468.15	
W8	61+95.23	13.00' LT	468.50	
W9	66+28.39	13.00' LT	467.71	
W20	67+39.61	13.00' LT	468.97	
W21	68+04.02	13.00' LT	469.82	
W22	68+15.15	13.00' LT	469.96	
W23	68+15.15	13.00' RT	469.96	
W24	67+72.84	13.00' RT	469.45	
W25	66+28.39	13.00' RT	467.71	
W26	62+44.59	13.00' RT	468.48	
W27	62+20.50	31.34' RT	467.33	
W28	62+20.39	45.80' RT	466.98	
W29	61+97.44	45.73' RT	466.98	
W30	61+97.37	31.73' RT	467.28	
W31	61+72.75	13.26' RT	468.23	
W32	61+54.79	13.77' RT	467.84	
W33	61+39.66	14.00' RT	467.54	
W34	59+49.98	14.00' RT	463.26	

NOTES:
1. ALL SIDEWALKS ARE 4' WIDE UNLESS OTHERWISE NOTED.
2. ALL CURB RADII ARE 25' UNLESS OTHERWISE NOTED.
3. FOR SIGNAGE (INCLUDING NO PARKING SIGNS), STREET TREE, LANDSCAPING, AND BUFFERING REQUIREMENTS, SEE SHEETS 12-15.
4. FOR CENTERLINE CURVE DATA, SEE SHEET 9.
5. FOR STREET LIGHT SCHEDULE, SEE SHEET 15.
6. FOR TYPICAL SECTIONS, SECTION DIMENSIONS AND ROAD DETAILS, SEE SHEET 9.
7. FOR STORM DRAIN SIZING INFORMATION, SEE SHEETS 21-23.
8. ALL OF THE SEWER SHOWN IS 8" UNLESS OTHERWISE NOTED.
9. ALL OF THE SHC'S SERVING NUMBERED LOTS ARE 4".
10. ALL OF THE WATER SHOWN IS 8" UNLESS OTHERWISE NOTED.
11. ALL OF THE WHC'S SERVING NUMBERED LOTS ARE 1-1/2".
12. ALL CURB IS 7 8" HEIGHT UNLESS OTHERWISE NOTED. SEE SHEET 9 FOR CURB DETAILS.
13. CONDUIT CROSSING FOR STREET LIGHTS SHALL BE (4) 4" SCHEDULE 80 PVC, INSTALLED FLAT AT A DEPTH OF 36" WITH MARKERS ON BOTH SIDES AND WITH PULL STRINGS INSTALLED. ONE CONDUIT IS TO BE USED FOR EACH OF THE FOLLOWING: ELECTRIC, VERIZON, GAS, & CABLE.
14. ALL SIDEWALK RAMPS TYPE 'B' PER HOWARD COUNTY STANDARD DETAIL R-4.03, UNLESS OTHERWISE NOTED.

PROPOSED CENTERLINE (PGL)
EXISTING GRADE (PGL)
EX. B.R.L. LEFT
EX. B.R.L. RIGHT

NOTE:
ROAD CLASSIFICATION: MINOR COLLECTOR (END 62+45)
DESIGN SPEED: 30 MPH
POSTED SPEED: 25 MPH

ROAD CLASSIFICATION: ACCESS STREET (START 62+45)
DESIGN SPEED: 30 MPH
POSTED SPEED: 25 MPH

FOR TYPICAL ROAD SECTIONS, SEE SHEET 9.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

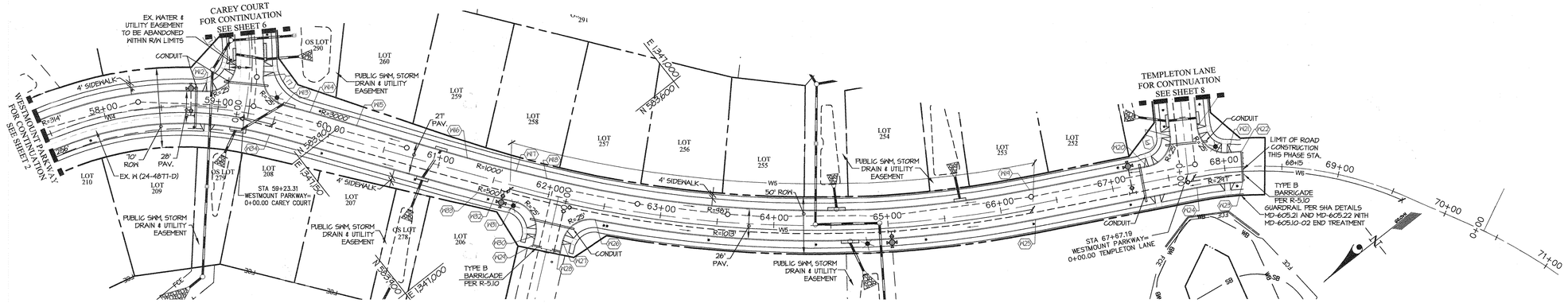
Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

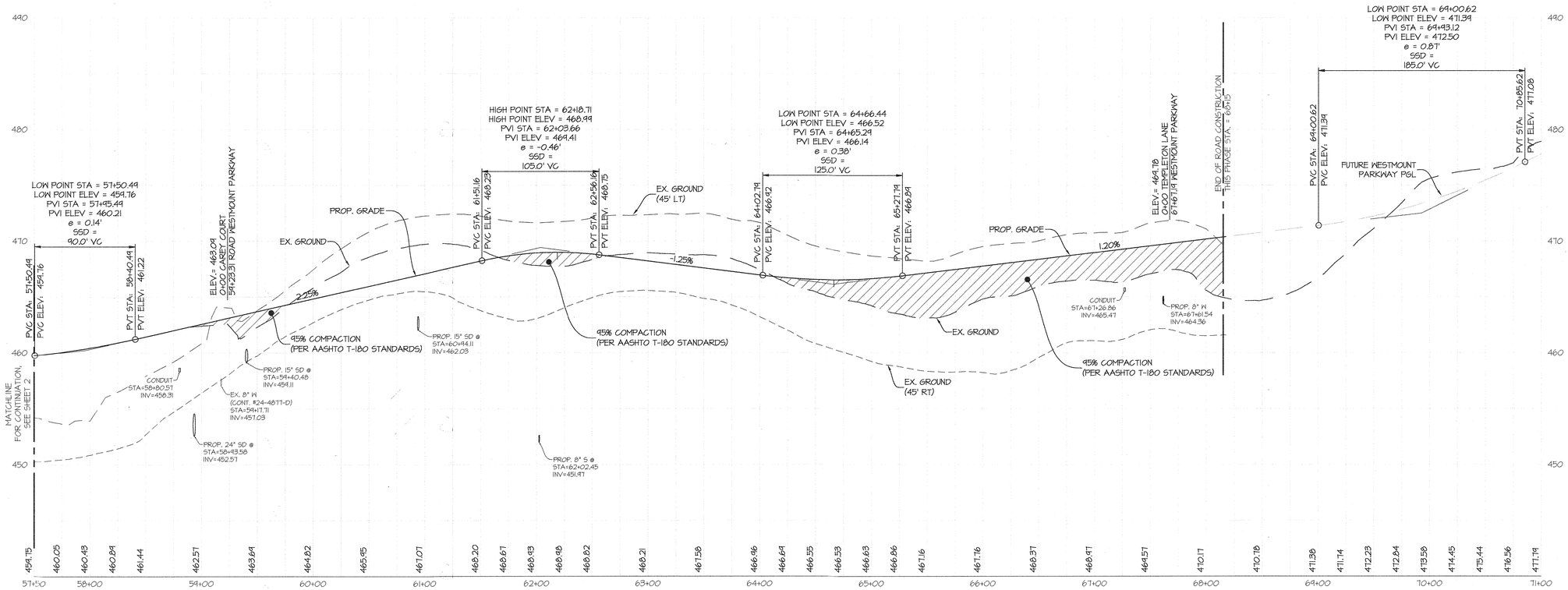
Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.24.19

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.



WESTMOUNT PARKWAY STREET GRADE PLAN
SCALE: 1" = 50'



WESTMOUNT PARKWAY STREET GRADE PROFILE
SCALE: HOR. 1" = 50'
VER. 1" = 5'
(R/W VARIES, MINOR COLLECTOR, PAVING WIDTH VARIES)

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DESIGNED BY:	DATE	REVISION	BY	APP'R.
JRD				
DRAWN BY: LAG				
CHECKED BY: DEV				

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975, EXPIRATION DATE: MAY 26, 2020
1/2/19

STATE OF MARYLAND — CHRISTOPHER WILLIAM CARLSON — 12975 — REGISTERED PROFESSIONAL ENGINEER

ROAD CONSTRUCTION PLAN & PROFILE - WESTMOUNT PARKWAY

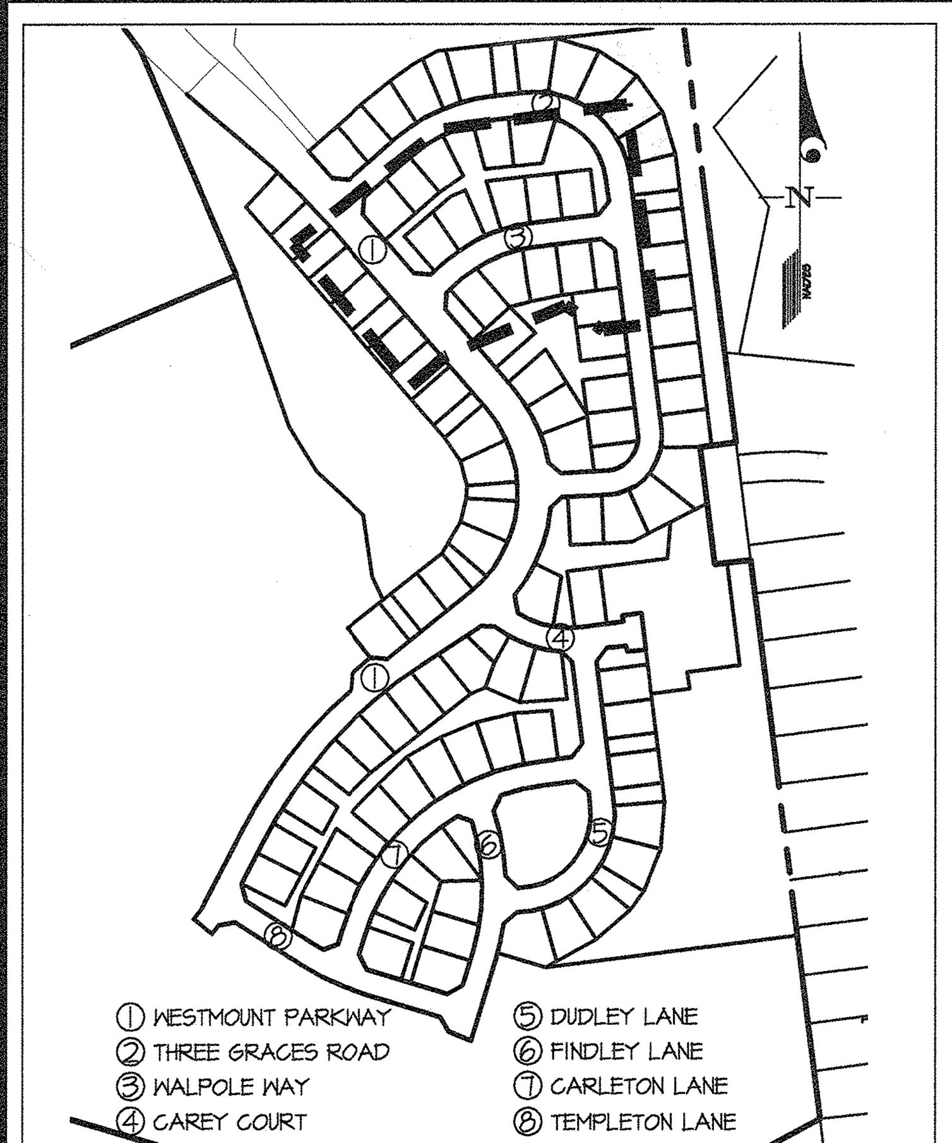
WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	3 OF 22

F 17-001

L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PH3)\13013_02-08-ROADS.dwg, Jun 27, 2019 - 2:20pm, Christopher R. Dicks

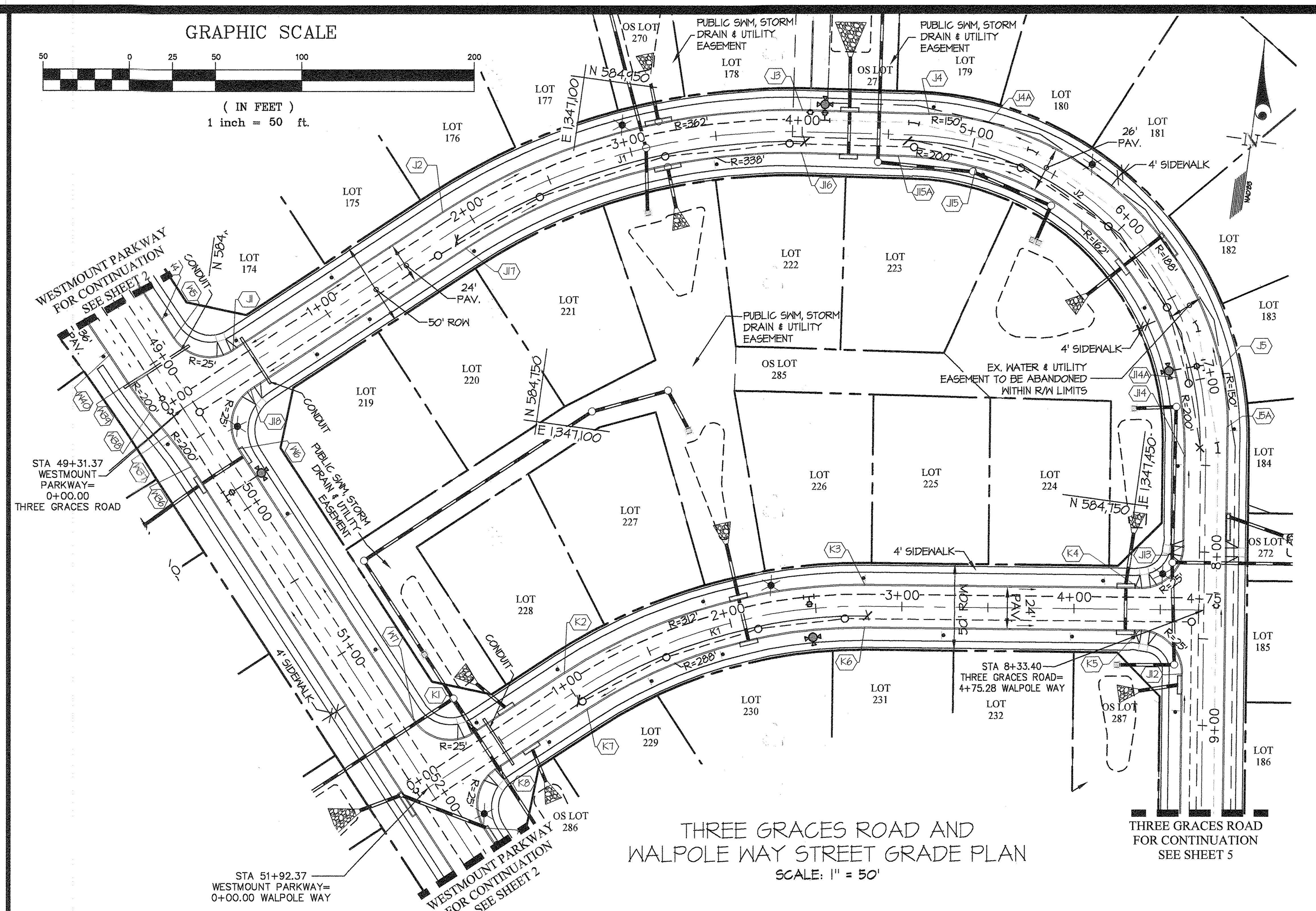


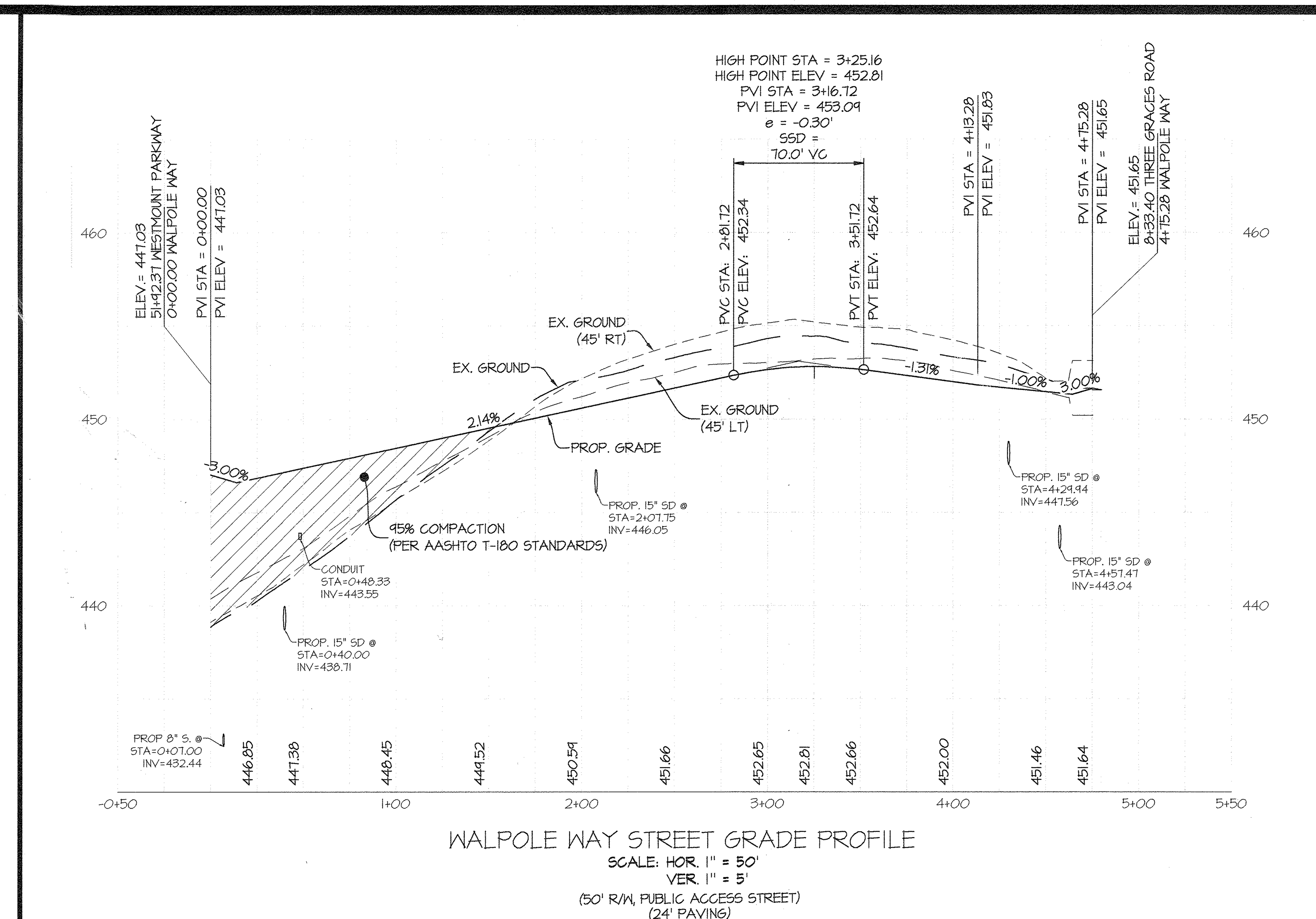
FLOW LINE ELEVATION TABLE FOR WALPOLE WAY

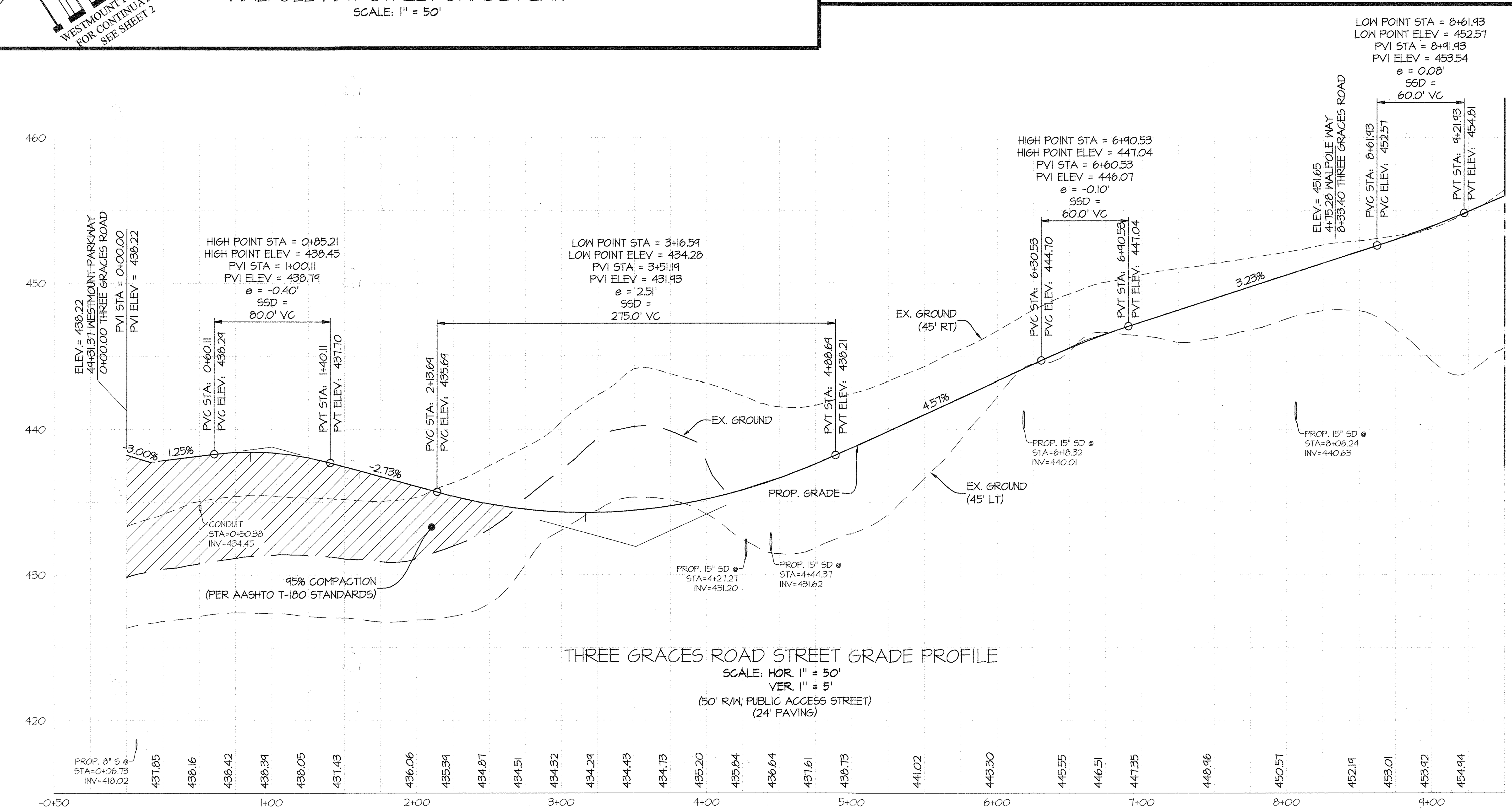
PT. NO	STATION	OFFSET	ELEV.	ASBUILT
K1	0+38.95	12.00' LT	446.77	
K2	1+01.64	12.00' LT	448.12	
K3	2+78.51	12.00' LT	451.91	
K4	4+38.28	12.00' LT	451.21	
K5	4+38.28	12.00' RT	451.21	
K6	2+78.51	12.00' RT	451.91	
K7	1+01.64	12.00' RT	448.12	
K8	0+38.96	12.00' RT	446.77	

FLOW LINE ELEVATION TABLE FOR THREE GRACES ROAD

PT. NO	STATION	OFFSET	ELEV.	ASBUILT
J1	0+42.35	12.00' LT	437.70	
J2	1+87.48	12.00' LT	436.03	
J3	3+99.98	12.00' LT	434.83	
J4	4+72.75	12.20' LT	437.14	
J4A	5+04.88	13.00' LT	438.55	
J5	6+96.22	13.00' LT	446.82	
J5A	7+28.36	12.20' LT	447.88	
J12	8+70.40	12.00' RT	452.48	
J13	7+96.40	12.00' RT	450.09	
J14	7+45.12	12.00' RT	448.43	
J14A	6+96.22	13.00' RT	446.82	
J15	5+04.88	13.00' RT	438.55	
J15A	4+55.99	12.00' RT	436.49	
J16	3+99.98	12.00' RT	434.83	
J17	1+87.48	12.00' RT	436.03	
J18	0+38.92	12.00' RT	437.66	







NOTES:
1. ALL SIDEWALKS ARE 4' WIDE UNLESS OTHERWISE NOTED.
2. ALL CURB RADII ARE 25' UNLESS OTHERWISE NOTED.
3. FOR SIGNAGE (INCLUDING NO PARKING SIGNS), STREET TREE, LANDSCAPING, AND BUFFERING REQUIREMENTS, SEE SHEETS 12-15.
4. FOR CENTERLINE CURVE DATA, SEE SHEET 9.
5. FOR STREET LIGHT SCHEDULE, SEE SHEET 15.
6. FOR TYPICAL SECTIONS, SECTION DIMENSIONS AND ROAD DETAILS, SEE SHEET 9.
7. FOR STORM DRAIN SIZING INFORMATION, SEE SHEETS 21-23.
8. ALL OF THE SEWER SHOWN IS 8" UNLESS OTHERWISE NOTED.
9. ALL OF THE SHC's SERVING NUMBERED LOTS ARE 4".
10. ALL OF THE WATER SHOWN IS 8" UNLESS OTHERWISE NOTED.
11. ALL OF THE WHC's SERVING NUMBERED LOTS ARE 1-1/2".
12. ALL CURB IS 7 3/16" HEIGHT UNLESS OTHERWISE NOTED. SEE SHEET 9 FOR CURB DETAILS.
13. CONDUIT CROSSING FOR STREET LIGHTS SHALL BE (4) 4" SCHEDULE 80 PVC, INSTALLED FLAT AT A DEPTH OF 36" WITH MARKERS ON BOTH SIDES AND WITH PULL STRINGS INSTALLED. ONE CONDUIT IS TO BE USED FOR EACH OF THE FOLLOWING: ELECTRIC, VERIZON, GAS, & CABLE.
14. ALL SIDEWALK RAMPS TYPE 'B' PER HOWARD COUNTY STANDARD DETAIL R-4.03, UNLESS OTHERWISE NOTED.

PROPOSED CENTERLINE (PGL) ————
EXISTING GRADE (PGL) — — —
EX. B.R.L. LEFT — — — — —
EX. B.R.L. RIGHT - - - - - - -

NOTE:
ROAD CLASSIFICATION: ACCESS STREET
DESIGN SPEED: 30 MPH
POSTED SPEED: 25 MPH

FOR TYPICAL ROAD SECTIONS, SEE SHEET 9.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 6-27-19
Chief, Development Engineering Division — Date 6.24.19

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PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY: JRD
DRAWN BY: LAG
CHECKED BY: DEV

DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION
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1/2/19

ROAD CONSTRUCTION PLAN & PROFILE-THREE GRACES RD & WALPOLE WAY

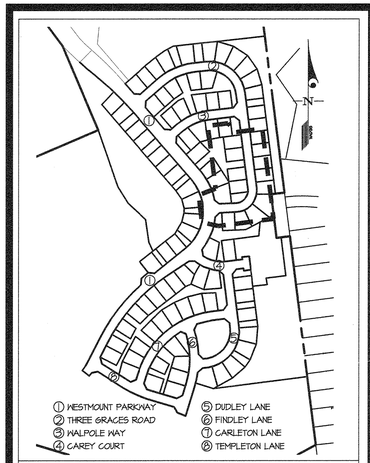
WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	R-ED	13-013
DATE	TAX MAP – GRID	SHEET
DEC., 2018	23-6&12	4 OF 92

F 17-001

L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PH3)\13013_02-08-ROADS.dwg, PLOTTED: 12/27/2018 2:50 PM, LAST SAVED: 12/27/2018 2:50 PM, PLOTTED BY: Jennifer R. Dicks



SCALE: 1" = 400'

FLOW LINE ELEVATION TABLE FOR THREE GRACES ROAD

PT. NO	STATION	OFFSET	ELEV.	ASBUILT
JG	12+12.27	12.16' LT	468.38	
JGA	12+48.84	13.00' LT	468.48	
JT	13+42.11	13.00' LT	466.40	
JTA	14+18.61	12.16' LT	465.56	
JS	15+31.32	12.00' LT	459.00	
JR	15+31.32	12.00' RT	459.00	
JQ	14+29.84	12.00' RT	465.10	
JQA	13+42.11	13.00' RT	466.40	
JJI	12+48.84	13.00' RT	468.48	
JJIA	12+61.10	12.00' RT	468.22	

NOTES:
1. ALL SIDEWALKS ARE 4' WIDE UNLESS OTHERWISE NOTED.
2. ALL CURB RADII ARE 25' UNLESS OTHERWISE NOTED.
3. FOR SIGNAGE (INCLUDING NO PARKING SIGNS), STREET TREE, LANDSCAPING, AND BUFFERING REQUIREMENTS, SEE SHEETS 12-15.
4. FOR CENTERLINE CURVE DATA, SEE SHEET 9.
5. FOR STREET LIGHT SCHEDULE, SEE SHEET 15.
6. FOR TYPICAL SECTIONS, SECTION DIMENSIONS AND ROAD DETAILS, SEE SHEET 9.
7. FOR STORM DRAIN SIZING INFORMATION, SEE SHEETS 21-23.
8. ALL OF THE SEWER SHOWN IS 8" UNLESS OTHERWISE NOTED.
9. ALL OF THE SHC's SERVING NUMBERED LOTS ARE 4".
10. ALL OF THE WATER SHOWN IS 8" UNLESS OTHERWISE NOTED.
11. ALL OF THE HAC's SERVING NUMBERED LOTS ARE 1-1/2".
12. ALL CURB IS 7 $\frac{8}{8}$" HEIGHT UNLESS OTHERWISE NOTED. SEE SHEET 9 FOR CURB DETAILS.
13. CONDUIT CROSSING FOR STREET LIGHTS SHALL BE (4) 4" SCHEDULE 80 PVC, INSTALLED FLAT AT A DEPTH OF 36" WITH MARKERS ON BOTH SIDES AND WITH PULL STRINGS INSTALLED. ONE CONDUIT IS TO BE USED FOR EACH OF THE FOLLOWING: ELECTRIC, VERIZON, GAS, & CABLE.
14. ALL SIDEWALK RAMPS TYPE 'B' PER HOWARD COUNTY STANDARD DETAIL R-4.08, UNLESS OTHERWISE NOTED.

PROPOSED CENTERLINE (PGL)
EXISTING GRADE (PGL)
EX. B.R.L. LEFT
EX. B.R.L. RIGHT

NOTE:
ROAD CLASSIFICATION: ACCESS STREET
DESIGN SPEED: 30 MPH
POSTED SPEED: 25 MPH

FOR TYPICAL ROAD SECTIONS, SEE SHEET 9.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

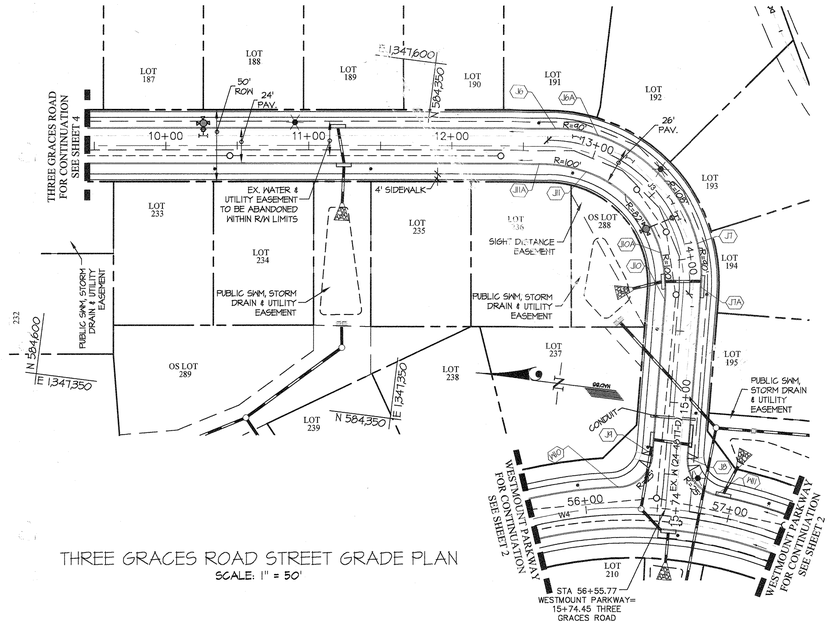
Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.24.19

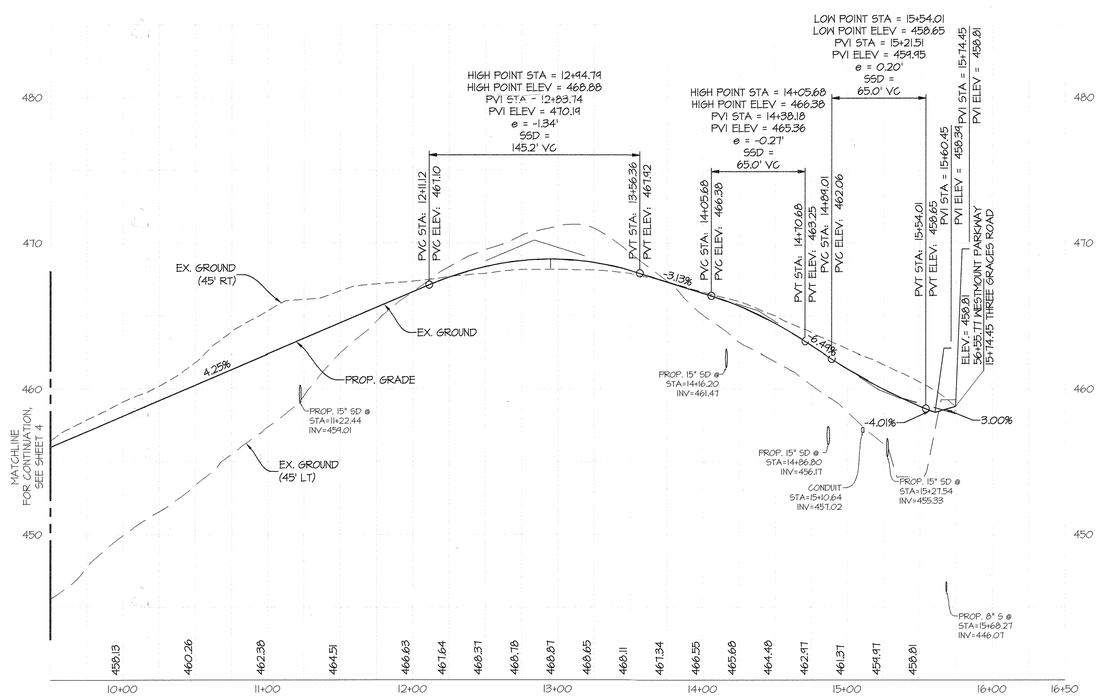
GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.



THREE GRACES ROAD STREET GRADE PLAN
SCALE: 1" = 50'



THREE GRACES ROAD STREET GRADE PROFILE
SCALE: HOR. 1" = 50'
VER. 1" = 5'

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3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:	DATE	REVISION	BY	APP'R.
JRD				
DRAWN BY: LAG				
CHECKED BY: DEV				

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975 EXPIRATION DATE: MAY 26, 2020

STATE OF MARYLAND — CHRISTOPHER GRIMES — 12975 — PROFESSIONAL ENGINEER

1/2/19

ROAD CONSTRUCTION PLAN & PROFILE - THREE GRACES ROAD

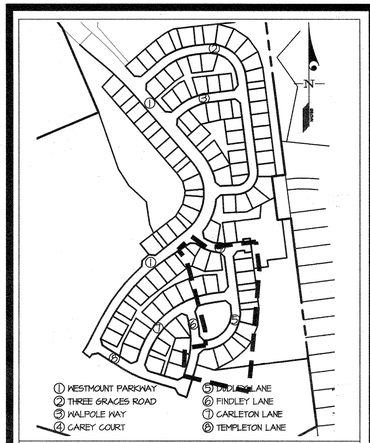
WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	5 OF 72

F 17-001

L:\CADD\DRAWINGS\1301\PLANS BY GLW\ROADS-SD (PH3)\1301_02-08-ROADS.dwg, 1/2/2019 2:53 PM, LAG, 1301_02-08-ROADS.dwg, Layout: 5, User: LAG, Plotted: 2:53 PM 1/2/2019 by LAG



SCALE: 1" = 400'

FLOW LINE ELEVATION TABLE FOR CAREY COURT

PT. NO	STATION	OFFSET	ELEV.	ASBUILT
L1	0+32.45	12.00' RT	463.20	
L2	1+41.81	12.00' RT	469.76	
L3	2+60.43	12.00' RT	472.14	
L4	3+09.44	12.00' RT	473.87	
L5	3+21.44	24.00' RT	474.15	
L6	3+21.44	30.00' RT	474.23	
L7	3+45.44	30.00' RT	474.54	
L8	3+45.44	30.00' LT	474.54	
L9	3+21.44	30.00' LT	474.23	
L10	3+21.44	24.00' LT	474.15	
L11	3+09.44	12.00' LT	473.87	
L12	2+25.45	12.00' LT	470.87	
L13	0+42.78	12.00' LT	463.46	

FLOW LINE ELEVATION TABLE FOR DUDLEY LANE

PT. NO	STATION	OFFSET	ELEV.	ASBUILT
M1	6+58.74	13.00' LT	447.05	
M1A	6+56.31	13.00' LT	447.00	
M2	3+64.10	13.00' LT	487.91	
M2A	3+51.24	12.69' LT	487.55	
M3	0+37.01	12.00' LT	471.43	
M4	0+34.09	12.00' RT	471.29	
M5	2+28.62	12.00' RT	481.02	
M6	3+02.62	12.00' RT	484.63	
M7	3+25.74	12.00' RT	485.88	
M7A	3+64.11	13.00' RT	487.94	
M8	6+56.31	13.00' RT	447.00	
M8A	6+58.74	13.00 RT	447.05	

NOTES:
1. ALL SIDEWALKS ARE 4' WIDE UNLESS OTHERWISE NOTED.
2. ALL CURB RADII ARE 25' UNLESS OTHERWISE NOTED.
3. FOR SIGNAGE (INCLUDING NO PARKING SIGNS), STREET TREE, LANDSCAPING, AND BUFFERING REQUIREMENTS, SEE SHEETS 12-15.
4. FOR CENTERLINE CURVE DATA, SEE SHEET 9.
5. FOR STREET LIGHT SCHEDULE, SEE SHEET 15.
6. FOR TYPICAL SECTIONS, SECTION DIMENSIONS AND ROAD DETAILS, SEE SHEET 9.
7. FOR STORM DRAIN SIZING INFORMATION, SEE SHEETS 21-23.
8. ALL OF THE SEWER SHOWN IS 8" UNLESS OTHERWISE NOTED.
9. ALL OF THE SHC's SERVING NUMBERED LOTS ARE 4".
10. ALL OF THE WATER SHOWN IS 8" UNLESS OTHERWISE NOTED.
11. ALL OF THE WHC's SERVING NUMBERED LOTS ARE 1-1/2".
12. ALL CURB IS 7 1/2" HEIGHT UNLESS OTHERWISE NOTED. SEE SHEET 9 FOR CURB DETAILS.
13. CONDUIT CROSSING FOR STREET LIGHTS SHALL BE (4) 4" SCHEDULE 80 PVC, INSTALLED FLAT AT A DEPTH OF 36" WITH MARKERS ON BOTH SIDES AND WITH PULL STRINGS INSTALLED. ONE CONDUIT IS TO BE USED FOR EACH OF THE FOLLOWING: ELECTRIC, VERIZON, GAS, & CABLE.
14. ALL SIDEWALK RAMPS TYPE 'B' PER HOWARD COUNTY STANDARD DETAIL R-4.03, UNLESS OTHERWISE NOTED.

PROPOSED CENTERLINE (PGL)
EXISTING GRADE (PGL)
EX. B.R.L. LEFT
EX. B.R.L. RIGHT

NOTE:
ROAD CLASSIFICATION: ACCESS STREET
DESIGN SPEED: 30 MPH
POSTED SPEED: 25 MPH
FOR TYPICAL ROAD SECTIONS, SEE SHEET 9.

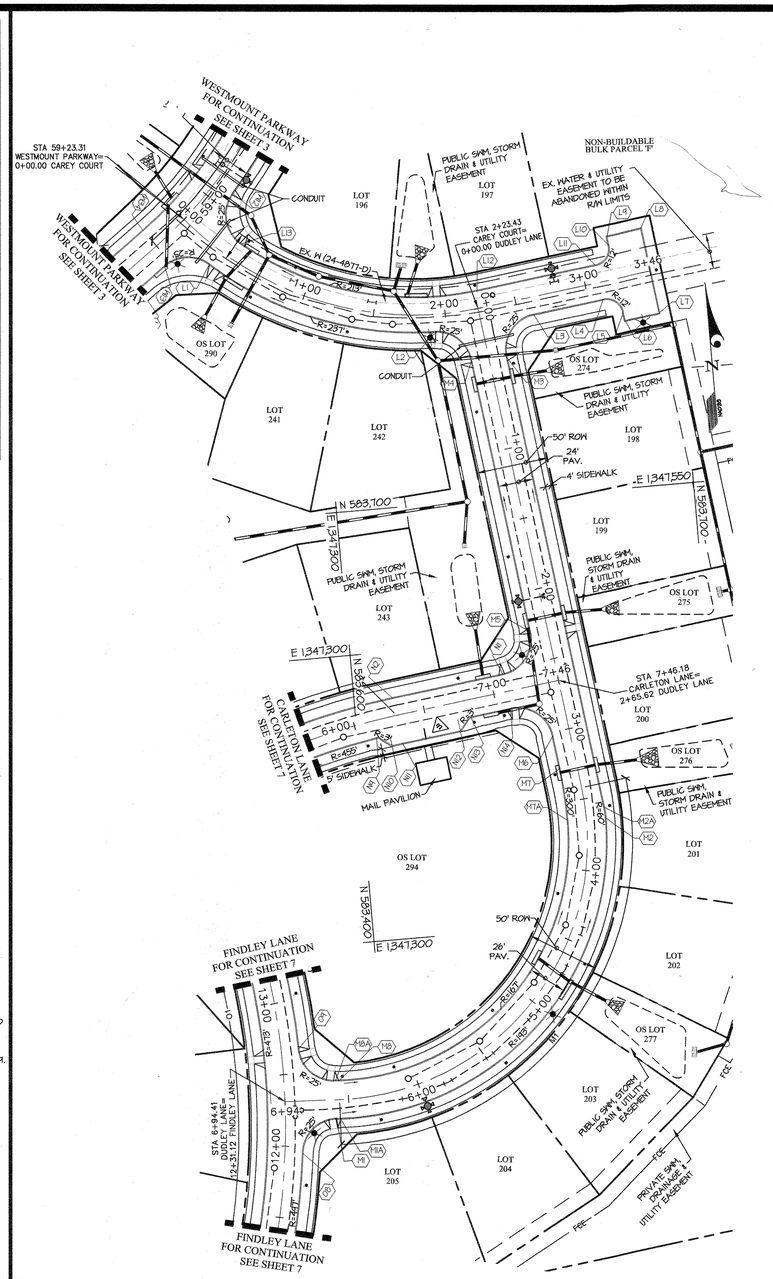
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

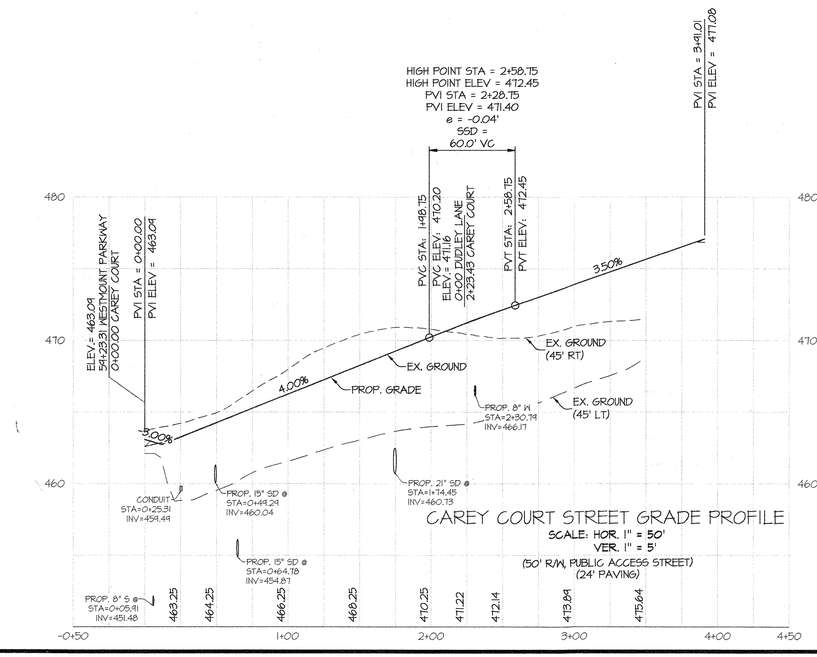
Chief, Division of Land Development — Date 6.27.19

Chief, Development Engineering Division — Date

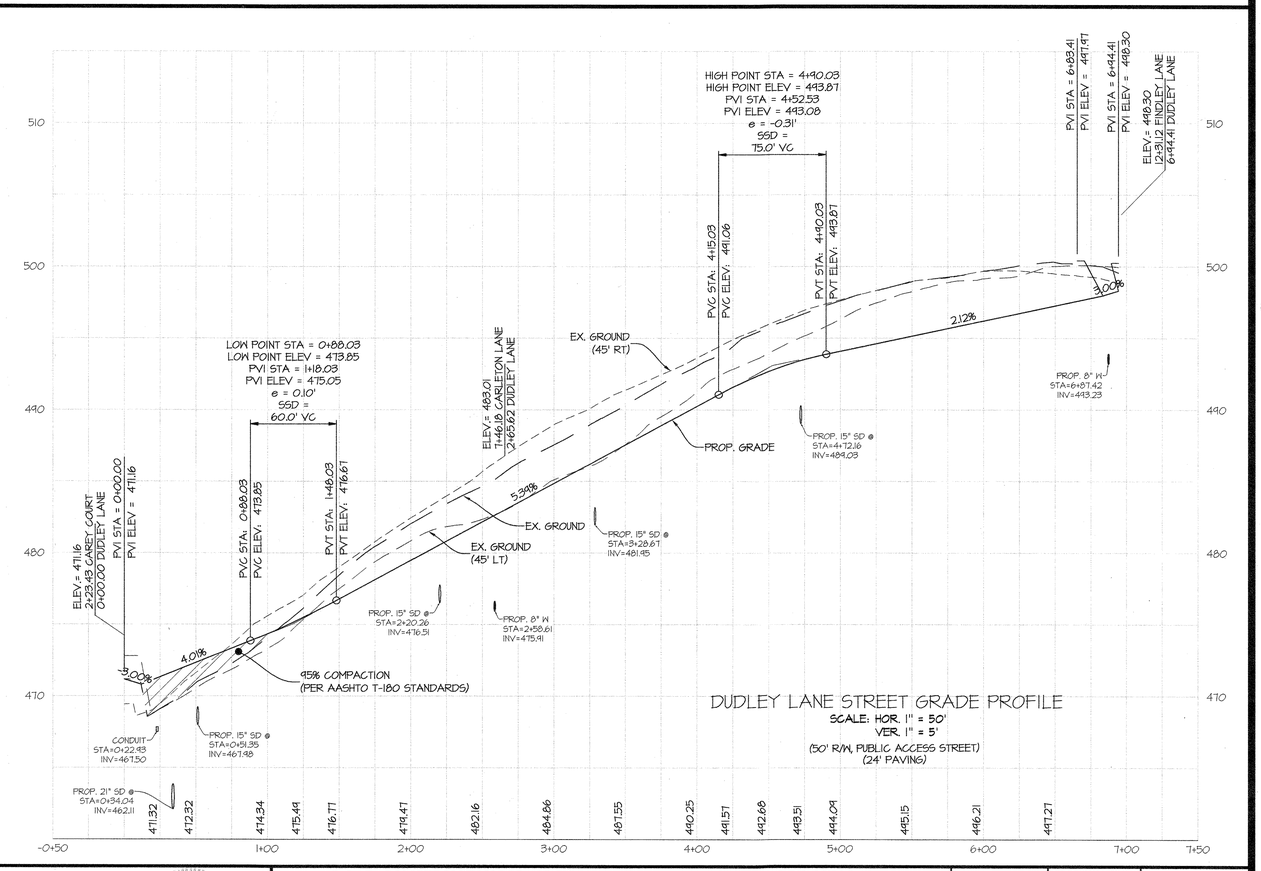


CAREY COURT AND DUDLEY LANE
STREET GRADE PLAN
SCALE: 1" = 50'

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.



CAREY COURT STREET GRADE PROFILE
SCALE: HOR. 1" = 50'
VER. 1" = 5'
(50' R/W, PUBLIC ACCESS STREET)
(24' PAVING)



DUDLEY LANE STREET GRADE PROFILE
SCALE: HOR. 1" = 50'
VER. 1" = 5'
(50' R/W, PUBLIC ACCESS STREET)
(24' PAVING)

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DESIGNED BY:				
JRD				
DRAWN BY:				
LAG				
CHECKED BY:				
DEV	2021-02-11	Revise Striping at Mail Pavilion Parking ⑧	WGJ	DEV
	DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975
EXPIRATION DATE: MAY 26, 2020
4/2/19

ROAD CONSTRUCTION PLAN & PROFILE - CAREY COURT & DUDLEY LANE

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294
AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	6 OF 92

F 17-001

SCALE: 1" = 400'

FLOW LINE ELEVATION TABLE FOR FINDLEY LANE

PT. NO	STATION	OFFSET	ELEV.	ASBUILT
01	14+14.54	12.00' LT	488.56	
02	11+13.44	12.00' LT	447.79	
03	10+26.13	12.00' LT	446.70	
04	9+52.13	12.00' LT	445.77	
05	9+34.13	12.00' LT	445.61	
06	9+34.13	12.00' RT	445.61	
07	11+13.44	12.00' RT	447.79	
08	11+45.78	12.00' RT	448.45	
09	12+66.45	12.00' RT	446.82	
010	14+22.50	12.00' RT	488.20	

FLOW LINE ELEVATION TABLE FOR CARLETON LANE

PT. NO	STATION	OFFSET	ELEV.	ASBUILT
N1	1+09.18	12.00' LT	482.19	
N2	6+30.41	12.00' LT	484.42	
N3	0+82.79	12.00' LT	484.13	
N4	0+43.44	12.00' LT	484.62	
N5	0+33.96	12.00' RT	484.85	
N6	0+82.79	12.00' RT	484.13	
N7	4+38.85	12.00' RT	486.64	
N8	5+19.66	12.00' RT	487.51	
N9	6+13.07	12.00' RT	485.37	
N10	6+22.52	20.00' RT	484.89	
* N11	6+30.41	20.00' RT	484.70	
* N12	6+71.85	20.00' RT	484.13	
* N13	6+81.09	12.00' RT	483.60	
N14	7+09.18	12.00' RT	482.97	

* SEE SHEET 9 FOR MORE SPOT ELEVATIONS AT MAIL PAVILION.

NOTES:
1. ALL SIDEWALKS ARE 4' WIDE UNLESS OTHERWISE NOTED.
2. ALL CURB RADII ARE 25' UNLESS OTHERWISE NOTED.
3. FOR SIGNAGE (INCLUDING NO PARKING SIGNS), STREET TREE, LANDSCAPING, AND BUFFERING REQUIREMENTS, SEE SHEETS 12-15.
4. FOR CENTERLINE CURVE DATA SEE SHEET 4.
5. FOR STREET LIGHT SCHEDULE, SEE SHEET 15.
6. FOR TYPICAL SECTIONS, SECTION DIMENSIONS AND ROAD DETAILS, SEE SHEET 9.
7. FOR STORM DRAIN SIZING INFORMATION, SEE SHEETS 21-23.
8. ALL OF THE SEWER SHOWN IS 8" UNLESS OTHERWISE NOTED.
9. ALL OF THE SHO'S SERVING NUMBERED LOTS ARE 4".
10. ALL OF THE WATER SHOWN IS 8" UNLESS OTHERWISE NOTED.
11. ALL OF THE PHC'S SERVING NUMBERED LOTS ARE 1-1/2".
12. ALL CURB IS 7 $\frac{3}{8}$" HEIGHT UNLESS OTHERWISE NOTED. SEE SHEET 9 FOR CURB DETAILS.
13. CONDUIT CROSSING FOR STREET LIGHTS SHALL BE (4) 4" SCHEDULE 80 PVC, INSTALLED FLAT AT A DEPTH OF 36" WITH MARKERS ON BOTH SIDES AND WITH PULL STRINGS INSTALLED. ONE CONDUIT IS TO BE USED FOR EACH OF THE FOLLOWING: ELECTRIC, VERIZON, GAS, & CABLE.
14. ALL SIDEWALK RAMPS TYPE 'B' PER HOWARD COUNTY STANDARD DETAIL R-4.03, UNLESS OTHERWISE NOTED.

PROPOSED CENTERLINE (PGL)
EXISTING GRADE (PGL)
EX. B.R.L. LEFT
EX. B.R.L. RIGHT

NOTE:
ROAD CLASSIFICATION: ACCESS STREET
DESIGN SPEED: 30 MPH
POSTED SPEED: 25 MPH
FOR TYPICAL ROAD SECTIONS, SEE SHEET 9.

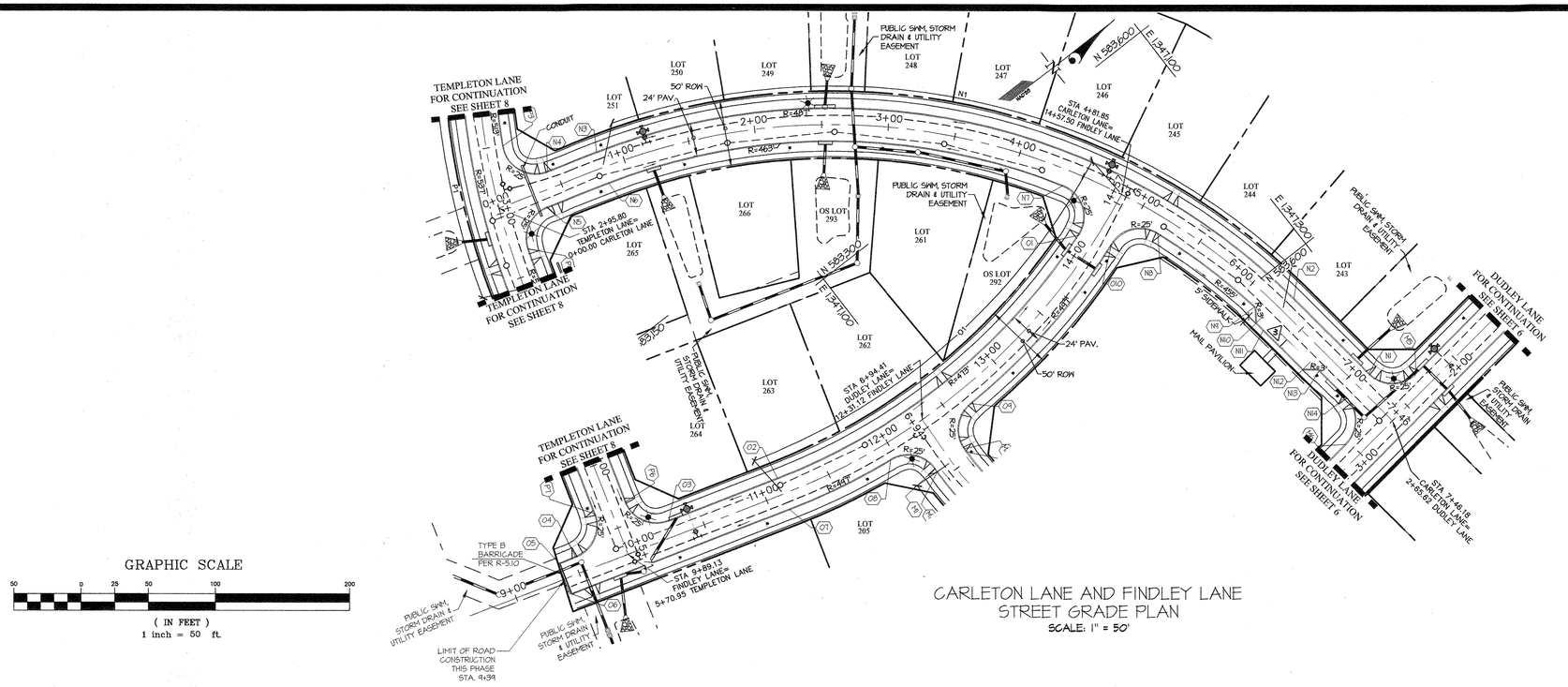
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.24.19

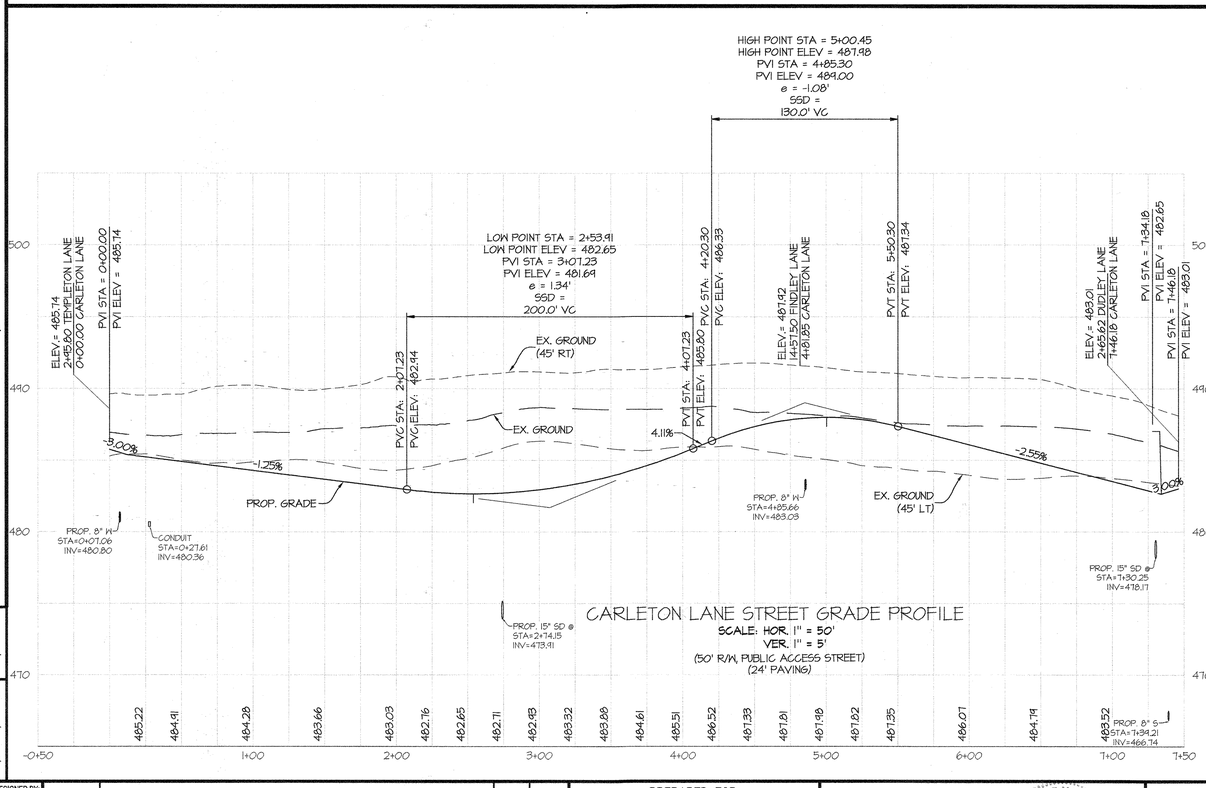


GRAPHIC SCALE

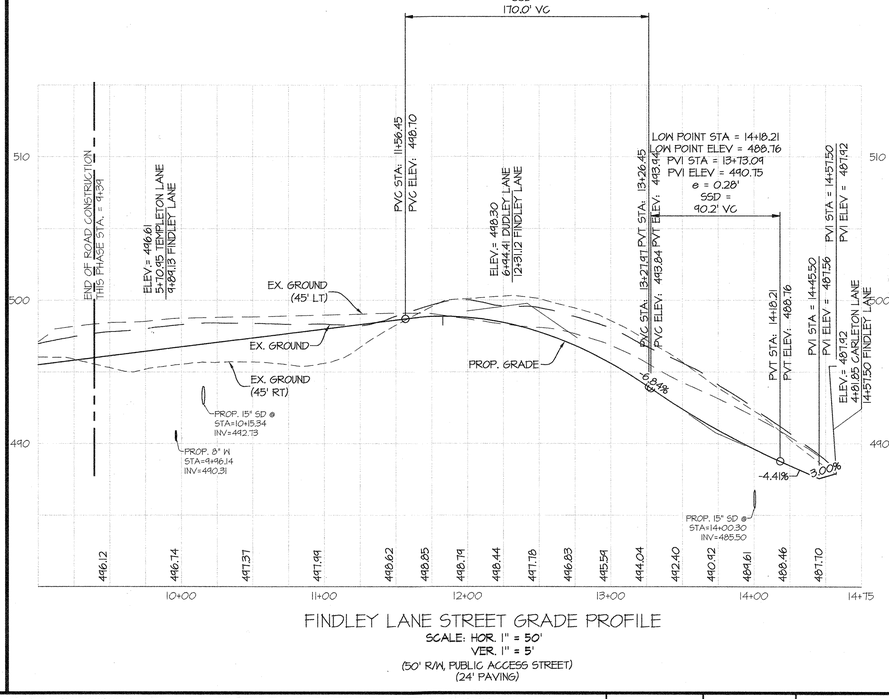
50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

CARLETON LANE AND FINDLEY LANE
STREET GRADE PLAN
SCALE: 1" = 50'



CARLETON LANE STREET GRADE PROFILE
SCALE: HOR. 1" = 50'
VER. 1" = 5'
(50' R/W, PUBLIC ACCESS STREET)
(24' PAVING)



FINDLEY LANE STREET GRADE PROFILE
SCALE: HOR. 1" = 50'
VER. 1" = 5'
(50' R/W, PUBLIC ACCESS STREET)
(24' PAVING)

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DESIGNED BY:			
JRD			
DRAWN BY:			
LAG			
CHECKED BY:			
DEV	2021-06-11	1/2 Revise Striping & Spot Elevs at Mail Pavilion Parking	WGJ / DEV
	DATE	REVISION	BY / APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

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1/2/19

STATE OF MARYLAND — CHRISTOPHER D. ENGLERT — 12975 — PROFESSIONAL ENGINEER

ROAD CONSTRUCTION PLAN & PROFILE - CARLETON LANE & FINDLEY LANE

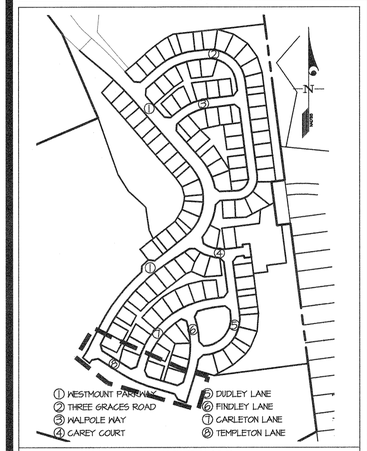
WESTMONT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	7 OF 92

F 17-001

L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PH3)\13013_02-08-ROADS.dwg, 1/2/2019 11:41:11 AM, JEFF DAVIS, 1:1, Adobe PDF, Jennifer D. Davis



SCALE: 1" = 400'

FLOW LINE ELEVATION TABLE FOR TEMPLETON LANE

PT. NO	STATION	OFFSET	ELEV.	ASBUILT
P1	0+34.68	12.00' LT	470.04	
P2	2+14.17	12.00' LT	480.15	
P3	2+50.68	12.00' LT	482.48	
P4	3+31.03	12.00' LT	487.69	
P5	3+58.11	12.00' LT	484.21	
P6	5+33.45	12.00' LT	446.11	
P7	5+33.45	12.00' RT	446.11	
P8	3+58.11	12.00' RT	484.36	
P9	2+14.17	12.00' RT	480.15	
P10	0+34.90	12.00' RT	470.17	

NOTES:
1. ALL SIDEWALKS ARE 4' WIDE UNLESS OTHERWISE NOTED.
2. ALL CURB RADII ARE 25' UNLESS OTHERWISE NOTED.
3. FOR SIGNAGE (INCLUDING NO PARKING SIGNS), STREET TREE, LANDSCAPING, AND BUFFERING REQUIREMENTS, SEE SHEETS 12-15.
4. FOR CENTERLINE CURVE DATA, SEE SHEET 9.
5. FOR STREET LIGHT SCHEDULE, SEE SHEET 15.
6. FOR TYPICAL SECTIONS, SECTION DIMENSIONS AND ROAD DETAILS, SEE SHEET 9.
7. FOR STORM DRAIN SIZING INFORMATION, SEE SHEETS 21-23.
8. ALL OF THE SEWER SHOWN IS 8" UNLESS OTHERWISE NOTED.
9. ALL OF THE SHC's SERVING NUMBERED LOTS ARE 4".
10. ALL OF THE WATER SHOWN IS 8" UNLESS OTHERWISE NOTED.
11. ALL OF THE HHC's SERVING NUMBERED LOTS ARE 1-1/2".
12. ALL CURB IS 7 $\frac{1}{2}$" HEIGHT UNLESS OTHERWISE NOTED. SEE SHEET 9 FOR CURB DETAILS.
13. CONDUIT CROSSING FOR STREET LIGHTS SHALL BE (4) 4" SCHEDULE 80 PVC, INSTALLED FLAT AT A DEPTH OF 36" WITH MARKERS ON BOTH SIDES AND WITH PULL STRINGS INSTALLED. ONE CONDUIT IS TO BE USED FOR EACH OF THE FOLLOWING: ELECTRIC, VERIZON, GAS, & CABLE.
14. ALL SIDEWALK RAMPS TYPE B1 PER HOWARD COUNTY STANDARD DETAIL R-4.03, UNLESS OTHERWISE NOTED.

PROPOSED CENTERLINE (PGL)
EXISTING GRADE (PGL)
EX. B.R.L. LEFT
EX. B.R.L. RIGHT

NOTE:
ROAD CLASSIFICATION: ACCESS STREET
DESIGN SPEED: 30 MPH
POSTED SPEED: 25 MPH

FOR TYPICAL ROAD SECTIONS, SEE SHEET 9.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

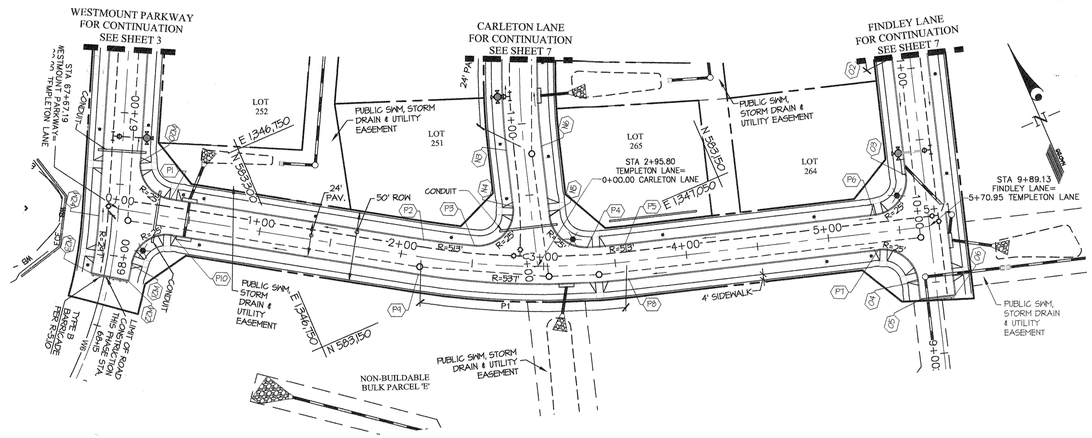
Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.24.19

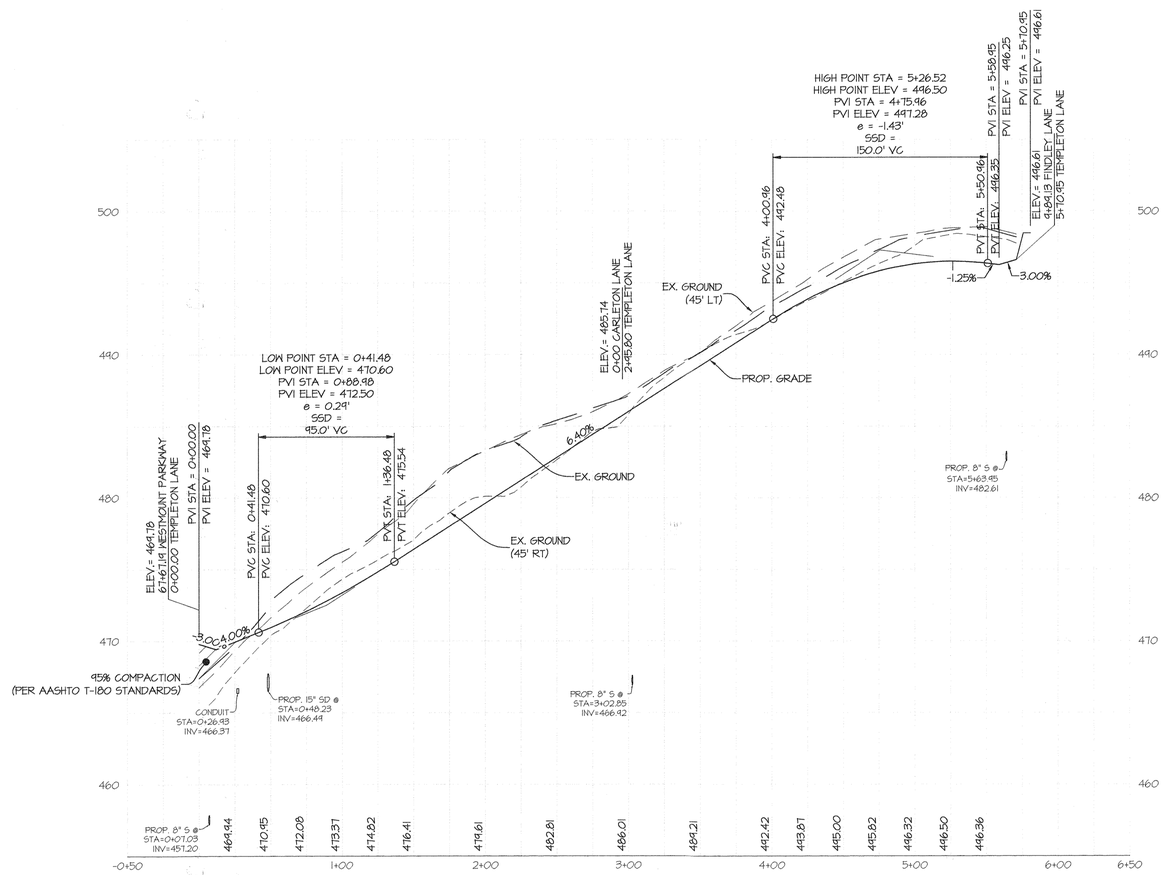
GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.



TEMPLETON LANE STREET GRADE PLAN
SCALE: 1" = 50'



TEMPLETON LANE STREET GRADE PROFILE
SCALE: HOR. 1" = 50'
VER. 1" = 5'
(50' R/W, PUBLIC ACCESS STREET)
(24' PAVING WIDTH)

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DESIGNED BY:	DATE	REVISION	BY	APP'R.
JRD				
DRAWN BY: LAG				
CHECKED BY: DEV				

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

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1/2/19

ROAD CONSTRUCTION PLAN & PROFILE - TEMPLETON LANE

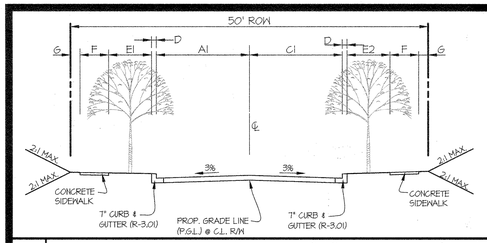
WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294
AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

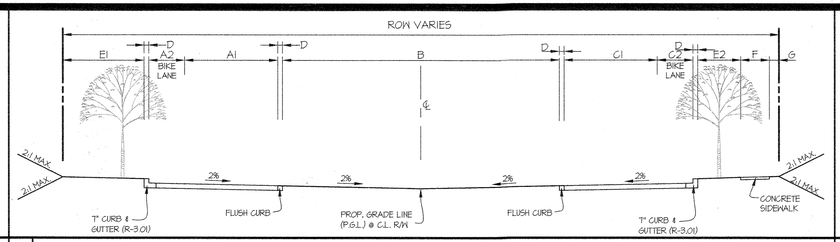
SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	8 OF 92

F 17-001

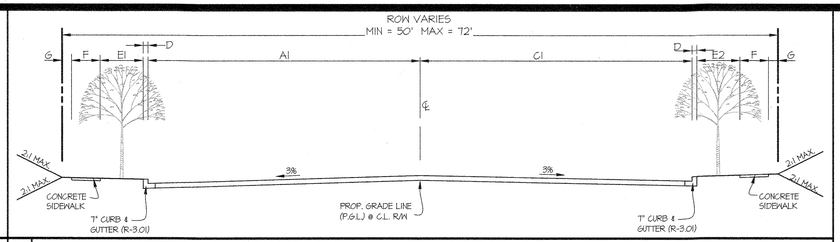
L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PH3)\13013_02-08-ROADS.dwg, 2/27/2019 8:34:11 AM, JEFF DEVER, 1:1, Adobe PDF, By: Jennifer R. Dove



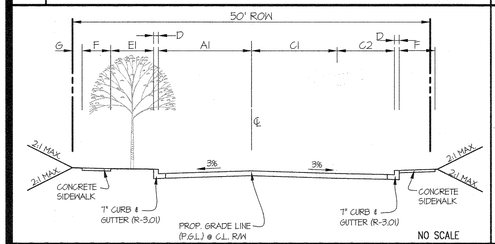
1 TYPICAL SECTION FOR 50' R/W NO SCALE



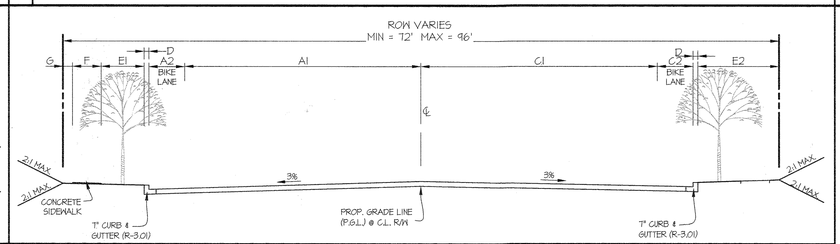
3 TYPICAL SECTION FOR VARYING R/W WITH ISLAND NO SCALE



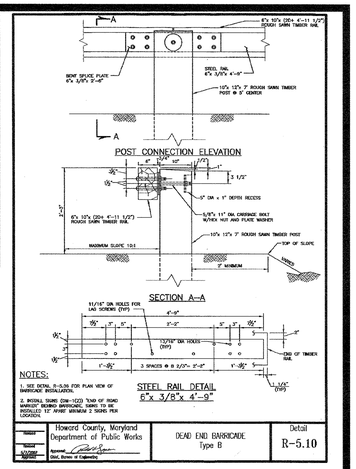
5 TYPICAL SECTION FOR VARYING R/W WITH CROWN NO SCALE



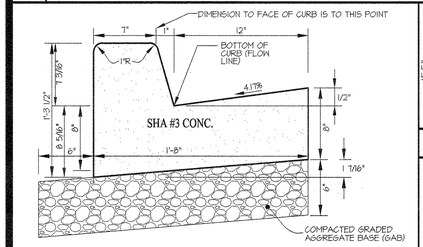
2 TYPICAL SECTION FOR 50' R/W WITH PARALLEL PARKING NO SCALE



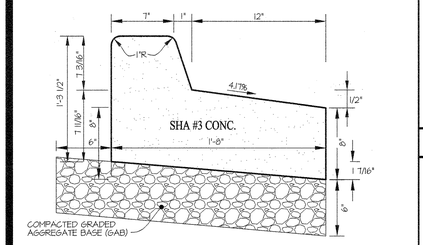
4 TYPICAL SECTION FOR VARYING R/W WITH CROWN & BIKE LANE NO SCALE



ISSUED	Howard County, Maryland Department of Public Works	DEAD END BARRICADE Type B	Detail R-5.10
1/1/1994	Director, Bureau of Engineering		



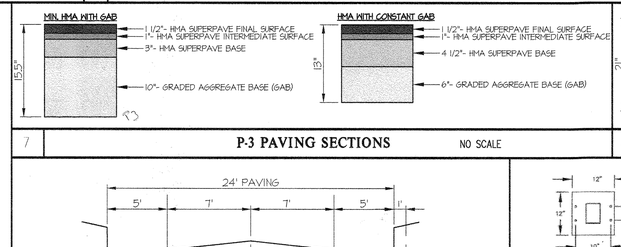
STANDARD COMBINATION CURB AND GUTTER



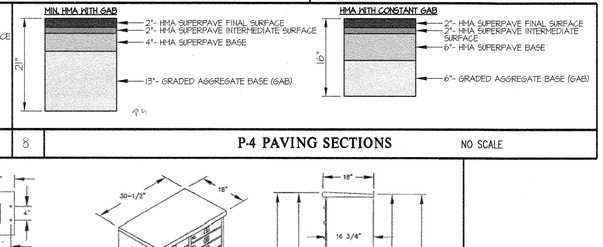
REVERSE COMBINATION CURB AND GUTTER

NOTES:
1. STANDARD "I" COMBINATION CURB AND GUTTER TO BE USED IN ALL PUBLIC RIGHTS OF WAY.
2. GUTTER PAN AT MEDIAN EDGE OF INTERMEDIATE ARTERIALS OR THE HIGH SIDE OF SUPERELEVATED SECTIONS SHALL BE SLOPED AT THE SAME RATE AND IN THE SAME DIRECTION AS THE PAVEMENT. MATCH PAVEMENT CROSS SLOPE WHEN GURB IS LOCATED ON THE LOW SIDE OF SUPERELEVATED SECTION AND THE RATE OF SUPERELEVATION IS GREATER THAN 3% FOR MODIFIED CURB AND GUTTER.

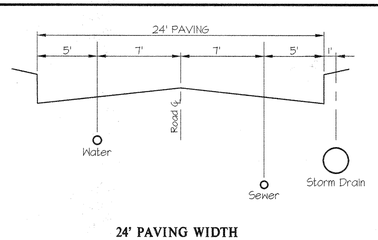
6 7" CONCRETE CURB AND GUTTER (STANDARD AND REVERSE) NO SCALE



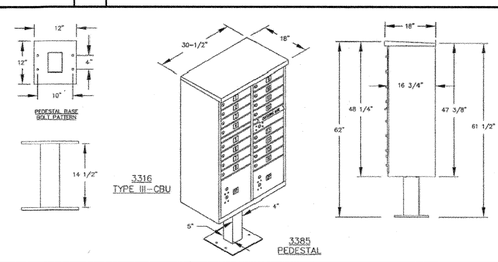
7 P-3 PAVING SECTIONS NO SCALE



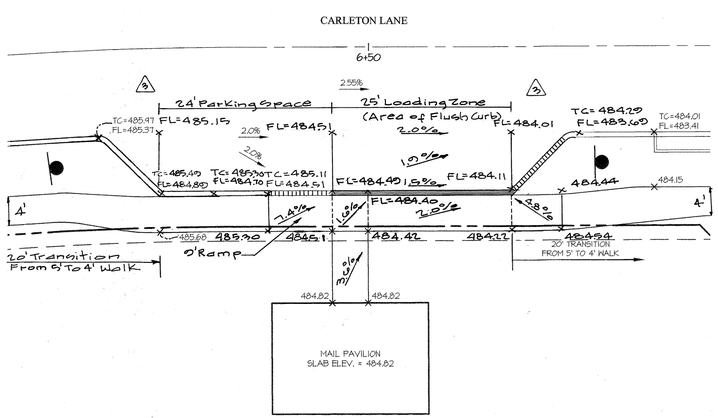
8 P-4 PAVING SECTIONS NO SCALE



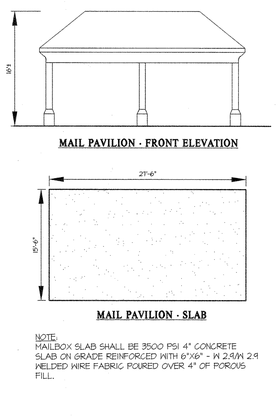
24' PAVING WIDTH



9 TYPICAL UTILITY LOCATIONS SCALE: 1"=6' 10 MAIL BOX DETAILS NO SCALE



11 MAIL PAVILION SCALE: 1" = 10'



NOTE:
MAILBOX SLAB SHALL BE 3500 PSI 4" CONCRETE SLAB ON GRADE REINFORCED WITH 6"X6" - W 2.9/W 2.9 WELDED WIRE FABRIC POURED OVER 4" OF POROUS FILL.

12 MAIL PAVILION DETAIL SCALE: 1" = 10'

NOTE: ALL TYPICAL SECTIONS HAVE BEEN SHOWN LOOKING UP STATION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.29.19

℄ CURVE DATA CHART

CURVE	STREET NAME	PC STA.	PT STA.	RADIUS	TANGENT	ARC	CHORD	BEARING	DELTA
J1	THREE GRACES ROAD	1+87.48	3+99.98	350.00'	109.64'	212.50'	209.25'	N66°23'36"E	34°47'13"
J2	THREE GRACES ROAD	4+64.65	7+36.46	175.00'	171.95'	271.81'	245.30'	S51°43'02"E	88°59'30"
J3	THREE GRACES ROAD	12+67.02	14+23.92	95.00'	103.00'	156.90'	139.67'	S40°05'34"W	94°37'42"
K1	WALPOLE WAY	1+01.64	2+78.51	300.00'	91.09'	176.86'	174.31'	N65°53'22"E	33°46'43"
L1	CAREY COURT	0+06.62	2+25.45	225.00'	118.95'	218.84'	210.31'	S69°21'30"E	55°43'34"
M1	DUDLEY LANE	3+42.02	6+56.31	180.00'	214.68'	314.30'	275.86'	S42°48'01"W	100°02'36"
N1	CARLETON LANE	0+82.79	6+30.41	475.00'	308.79'	547.61'	517.79'	N49°45'04"E	66°03'17"
O1	FINDLEY LANE	11+13.44	14+57.50	485.00'	179.63'	344.06'	336.89'	N3°35'56"W	40°38'44"
P1	TEMPLETON LANE	2+14.17	3+58.11	525.00'	72.43'	143.94'	143.49'	S65°25'17"E	15°42'34"
W1	WESTMOUNT PARKWAY	46+14.69	46+41.10	1165.03'	13.20'	26.40'	26.40'	S48°00'06"E	1°17'55"
W2	WESTMOUNT PARKWAY	46+41.10	46+87.56	893.00'	23.24'	46.47'	46.46'	S48°17'30"E	2°58'53"
W3	WESTMOUNT PARKWAY	46+87.56	48+40.84	1000.00'	76.79'	153.28'	153.13'	S45°23'28"E	8°46'56"
W4	WESTMOUNT PARKWAY	54+54.66	59+49.98	300.00'	325.10'	495.32'	440.94'	S61°17'58"W	94°35'56"
W5	WESTMOUNT PARKWAY	61+64.98	66+28.39	1000.00'	235.95'	463.42'	459.28'	S40°19'23"W	26°33'06"
W6	WESTMOUNT PARKWAY	67+72.89	69+59.38	310.00'	96.17'	186.50'	183.70'	S44°16'54"W	34°28'09"

ROAD INFORMATION

ROAD NAME	STATION	CLASSIFICATION	DESIGN SPEED	POSTED SPEED	A1	A2	B	C1	C2	D	E1	E2	F	G	R/W	PAVING SECTION	DETAIL
THREE GRACES ROAD	0+00 TO 4+55	ACCESS STREET	30 MPH	25 MPH	12'	-	-	12'	-	8"	1'	1'	4'	1'-4"	50'	P-3	1
THREE GRACES ROAD	4+55 TO 5+05	ACCESS STREET	30 MPH	25 MPH	VARIES	-	-	VARIES	-	8"	VARIES	VARIES	4'	1'-4"	50'	P-3	1
THREE GRACES ROAD	5+05 TO 6+46	ACCESS STREET	30 MPH	25 MPH	13'	-	-	13'	-	8"	6'	6'	4'	1'-4"	50'	P-3	1
THREE GRACES ROAD	6+46 TO 7+45	ACCESS STREET	30 MPH	25 MPH	VARIES	-	-	VARIES	-	8"	VARIES	VARIES	4'	1'-4"	50'	P-3	1
THREE GRACES ROAD	7+45 TO 12+61	ACCESS STREET	30 MPH	25 MPH	12'	-	-	12'	-	8"	1'	1'	4'	1'-4"	50'	P-3	1
THREE GRACES ROAD	12+61 TO 12+98	ACCESS STREET	30 MPH	25 MPH	VARIES	-	-	VARIES	-	8"	VARIES	VARIES	4'	1'-4"	50'	P-3	1
THREE GRACES ROAD	12+98 TO 13+92	ACCESS STREET	30 MPH	25 MPH	13'	-	-	13'	-	8"	6'	6'	4'	1'-4"	50'	P-3	1
THREE GRACES ROAD	13+92 TO 14+30	ACCESS STREET	30 MPH	25 MPH	VARIES	-	-	VARIES	-	8"	VARIES	VARIES	4'	1'-4"	50'	P-3	1
THREE GRACES ROAD	14+30 TO 15+74	ACCESS STREET	30 MPH	25 MPH	12'	-	-	12'	-	8"	1'	1'	4'	1'-4"	50'	P-3	1
WALPOLE WAY	0+00 TO 4+75	ACCESS STREET	30 MPH	25 MPH	12'	-	-	12'	-	8"	1'	1'	4'	1'-4"	50'	P-3	1
CAREY COURT	0+00 TO 3+46	ACCESS STREET	30 MPH	25 MPH	12'	-	-	12'	-	8"	1'	1'	4'	1'-4"	50'	P-3	1
DUDLEY LANE	0+00 TO 3+26	ACCESS STREET	30 MPH	25 MPH	12'	-	-	12'	-	8"	1'	1'	4'	1'-4"	50'	P-3	1
DUDLEY LANE	3+26 TO 3+64	ACCESS STREET	30 MPH	25 MPH	VARIES	-	-	VARIES	-	8"	VARIES	VARIES	4'	1'-4"	50'	P-3	1
DUDLEY LANE	3+64 TO 6+44	ACCESS STREET	30 MPH	25 MPH	13'	-	-	13'	-	8"	6'	6'	4'	1'-4"	50'	P-3	1
CARLETON LANE	0+00 TO 5+45	ACCESS STREET	30 MPH	25 MPH	12'	-	-	12'	-	8"	1'	1'	4'	1'-4"	50'	P-3	1
CARLETON LANE	5+45 TO 6+80	ACCESS STREET	30 MPH	25 MPH	12'	-	-	12'	8	8"	1'	-	4'	1'-4"	50'	P-3	2
CARLETON LANE	6+80 TO 7+46	ACCESS STREET	30 MPH	25 MPH	12'	-	-	12'	-	8"	1'	1'	4'	1'-4"	50'	P-3	1
FINDLEY LANE	9+39 TO 14+57	ACCESS STREET	30 MPH	25 MPH	12'	-	-	12'	-	8"	1'	1'	4'	1'-4"	50'	P-3	1
TEMPLETON LANE	0+00 TO 5+71	ACCESS STREET	30 MPH	25 MPH	12'	-	-	12'	-	8"	1'	1'	4'	1'-4"	50'	P-3	1
WESTMOUNT PARKWAY	44+30 TO 45+00	MINOR COLLECTOR	30 MPH	30 MPH	12'	6'	VARIES	12'	6'	8"	VARIES	6'	4'	VARIES	VARIES	P-4	3
*WESTMOUNT PARKWAY	45+00 TO 45+50	MINOR COLLECTOR	30 MPH	30 MPH	12'	6'	VARIES	12'	6'	8"	VARIES	6'	4'	VARIES	VARIES	P-4	TRANS.
WESTMOUNT PARKWAY	45+50 TO 47+32	MINOR COLLECTOR	30 MPH	30 MPH	VARIES	6'	-	VARIES	6'	8"	6'	VARIES	4'	VARIES	VARIES	P-4	4
WESTMOUNT PARKWAY	47+32 TO 48+45	MINOR COLLECTOR	30 MPH	30 MPH	12'	6'	-	12'	6'	8"	6'	VARIES	4'	VARIES	VARIES	P-4	4
WESTMOUNT PARKWAY	48+45 TO 62+45	MINOR COLLECTOR	30 MPH	25 MPH	VARIES	-	-	VARIES	-	8"	6'	6'	4'	VARIES	VARIES	P-4	5
WESTMOUNT PARKWAY	62+45 TO 68+15	ACCESS STREET	30 MPH	25 MPH	13'	-	-	13'	-	8"	6'	6'	4'	1'-4"	50'	P-3	1

NOTES:
1. ALL TYPICAL SECTIONS ARE SHOWN LOOKING UP STATION.
2. * WESTMOUNT PARKWAY TRANSITIONS FROM 2% CROSS SLOPE CHANNELED, TO 3% CROSS SLOPE CROWNED.

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PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4188

DESIGNED BY:	DRAWN BY:	CHECKED BY:
JRD	JRD	DEV

DATE	REVISION	BY	APP'R.
2021-06-11	4 Revise Striping & Spot Elevs at Mail Pavilion Parking	MJ	DEV

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12979, EXPIRATION DATE: MAY 26, 2020.
12/19

STATE OF MARYLAND — CARLTON EDMUND DEFRANCO — PROFESSIONAL ENGINEER

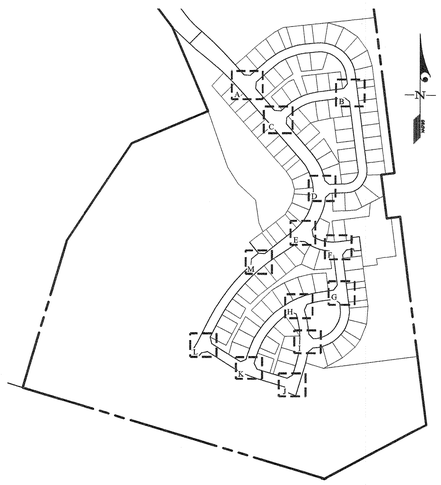
ROAD DETAILS

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

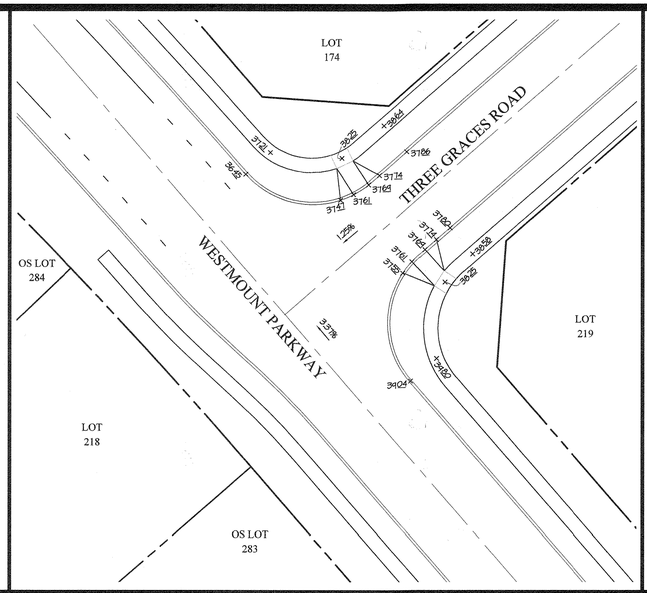
ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	9 OF 92

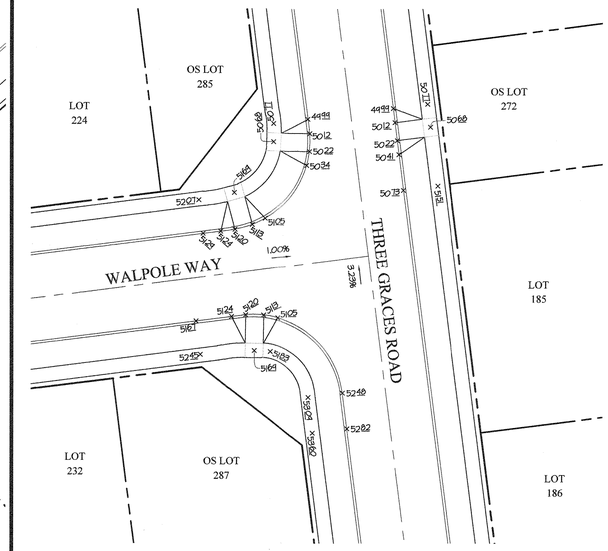
F 17-001



KEY MAP SCALE: 1"=400'



INTERSECTION 'A'



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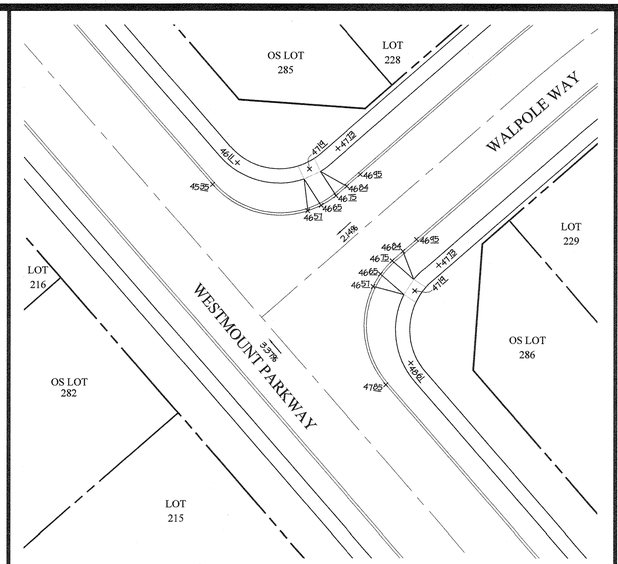
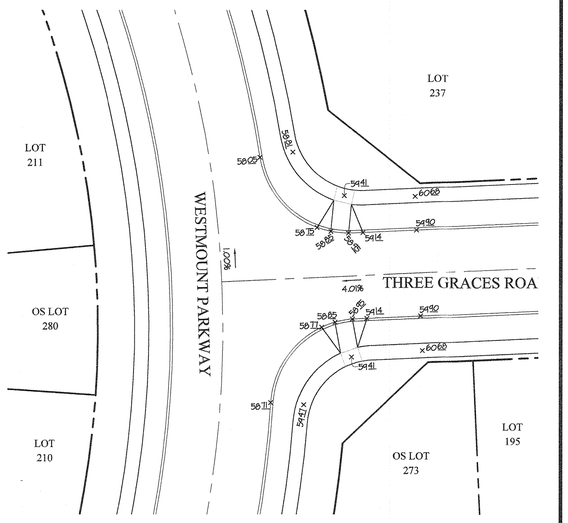


INTERSECTION 'C'



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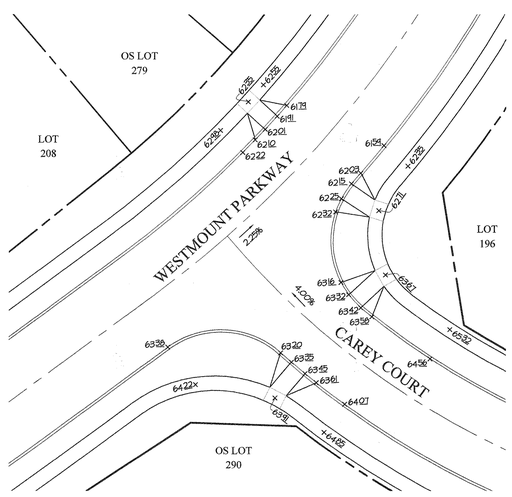

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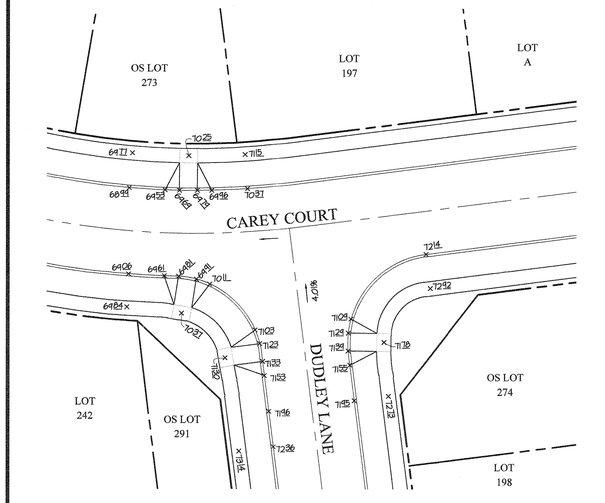
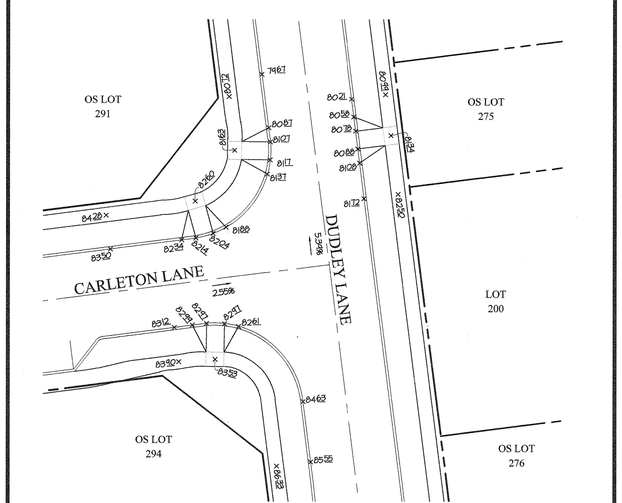


INTERSECTION 'F'



INTERSECTION 'G'

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.24.19

NOTE: SPOTS ALONG CURB ARE FLOW LINE ELEVATIONS.

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DESIGNED BY:	JH		
DRAWN BY:	JH		
CHECKED BY:	DEV		

DATE	REVISION	BY	APP'R

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975
EXPIRATION DATE: MAY 26, 2020

STATE OF MARYLAND — CARLTON KENNETH GIBSON — No. 12975 — PROFESSIONAL ENGINEER

1/2/19

ADA COMPLIANT SIDEWALK RAMPS

WESTMOUNT - PHASE 3

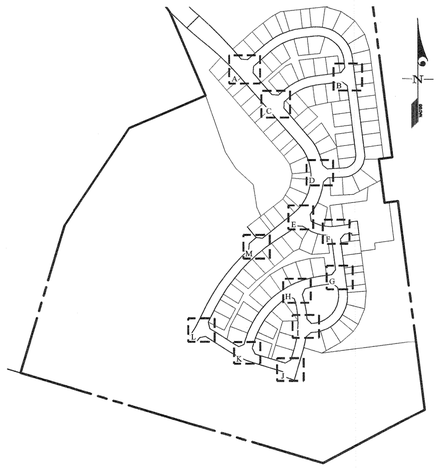
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F

A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

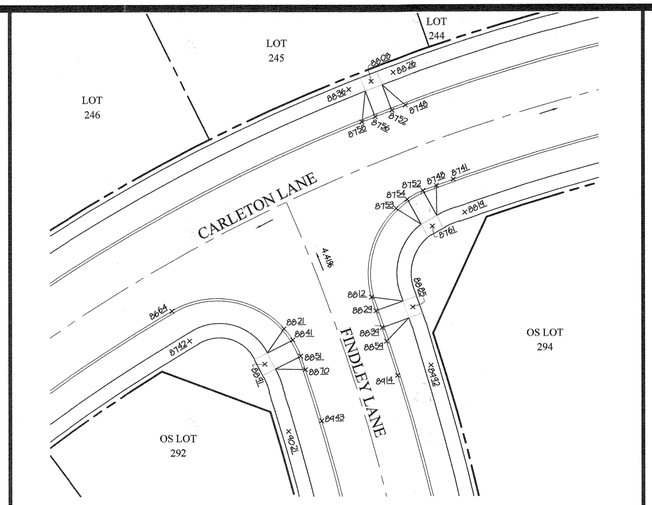
ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=20'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	10 OF 92

F 17-001



KEY MAP SCALE: 1"=400'



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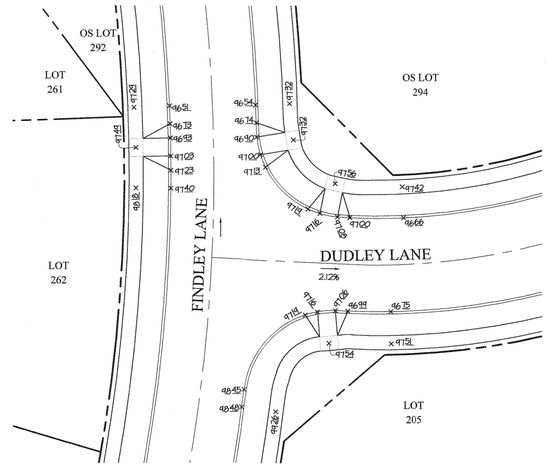
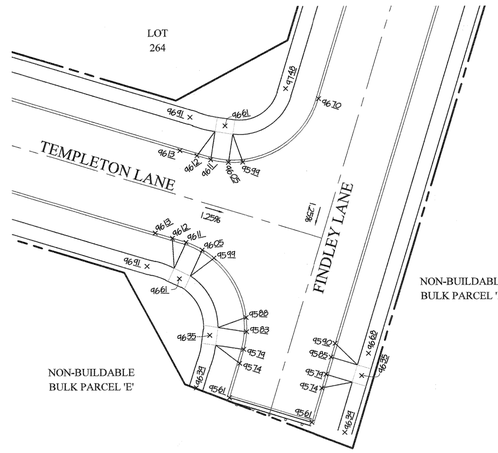
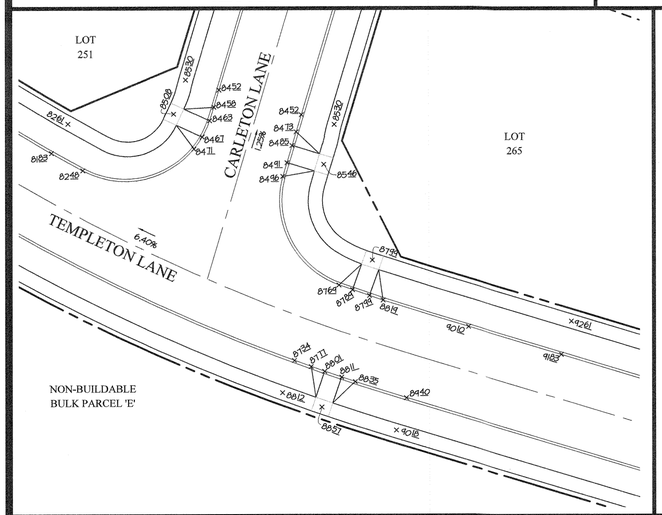


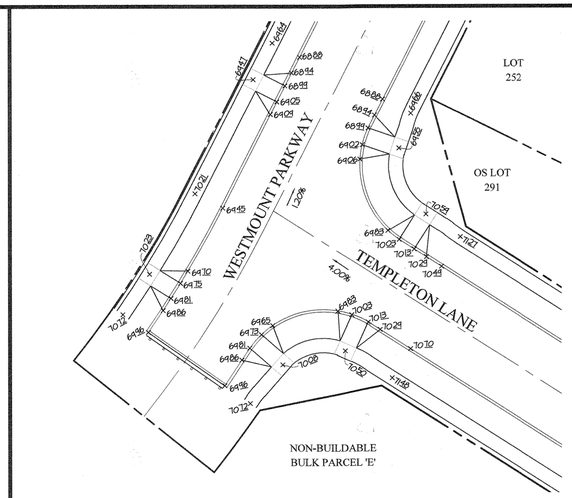
INTERSECTION 'I'



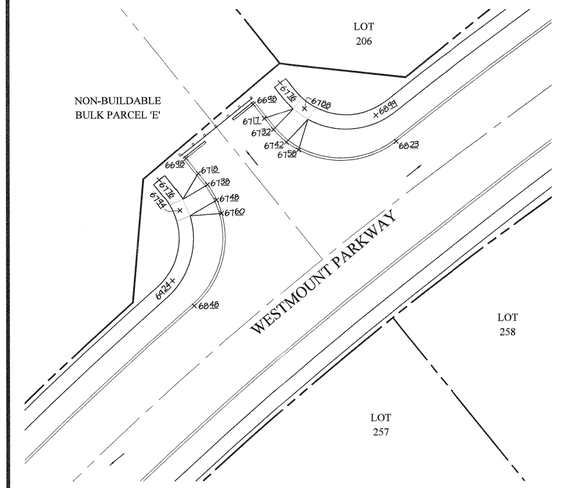
INTERSECTION 'J'



INTERSECTION 'K'



INTERSECTION 'L'



INTERSECTION 'M'

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.24.19

NOTE: SPOTS ALONG CURB ARE FLOW LINE ELEVATIONS.

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DESIGNED BY:	DATE	REVISION	BY	APP'R
JH				
DRAWN BY: JH				
CHECKED BY: DEV				

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
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ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975 EXPIRATION DATE: MAY 26, 2020

1/2/19

STATE OF MARYLAND — CHRISTOPHER KENNETH GORDON — REG. NO. 12975 — PROFESSIONAL ENGINEER

ADA COMPLIANT SIDEWALK RAMPS

WESTMOUNT - PHASE 3

LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F

A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=20'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	11 OF 92

F 17-001

L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PHS3)\13013_10-11-ADA RAMPS.dwg, 6/24/2019 2:20:22 PM, Jeffrey Hicks

LANDSCAPE LEGEND

- BOTTOM OF STREAM
- CENTERLINE OF STREAM
- SB — SB — STREAM BUFFER
- LIMIT OF WETLAND
- WETLAND AREA
- WB — WB — WETLAND BUFFER
- FCE — FOREST CONSERVATION EASEMENT
- EXISTING FOREST CONSERVATION EASEMENT
- NON-CREDITED OPEN SPACE
- PROPOSED STREET TREE (SEE LANDSCAPE SHEET 15 FOR PLANT LIST)
- PROPOSED LANDSCAPE BUFFER TREE (SEE LANDSCAPE SHEET 15 FOR PLANT LIST)
- PROPOSED SPECIMEN TREE (SEE LANDSCAPE SHEET 15 FOR PLANT LIST)
- 100 WATT LED (COLONIAL POST TOP)
- 150 WATT LED VAPOR (COLONIAL POST TOP)
- PROPOSED SIGN
- OS — OPEN SPACE SIGN
- // — // — FENCE
- GUARDRAIL
- INSTALL BIKE LANE MARKINGS AS SHOWN (5'-4" × 3'-3")

NOTES:
1. STREET LIGHT CONDUIT SHALL BE SCHEDULE 80 PVC WITH PULL STRING.
2. STREET TREE REQUIREMENTS FOR THREE GRACES ROAD AND CAREY COURT HAVE BEEN MET BY PROVIDING A SURPLUS OF TREES ON OTHER STREETS THROUGHOUT THE SUBDIVISION. THE RESTRICTIONS PROVIDED BY DRIVEWAYS, STREET LIGHTS, AND UTILITIES HAVE PREVENTED THESE STREETS FROM MEETING THE REQUIREMENTS ON THEIR OWN.
3. SEE SHEET 15 FOR LANDSCAPING NOTES AND BUFFER INFORMATION.

PAVEMENT MARKING INSTALLATION NOTES:

(A) INSTALL 5" WHITE PAVEMENT MARKING

(B) INSTALL 5" WHITE "PUPPY TRACKS" (2'-6"-2'...)

(C) INSTALL BICYCLE PAVEMENT MARKING

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 6-27-19
Chief, Development Engineering Division — Date 6-24-19

GLW PLANNING | ENGINEERING | SURVEYING
3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:	DATE	REVISION	BY	APP'R.
JRD				
DRAWN BY: JRD				
CHECKED BY: DEV				

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975, EXPIRATION DATE: MAY 26, 2020
STATE OF MARYLAND — CARLTON KENNETH GUTSCHICK — NO. 12975 — PROFESSIONAL ENGINEER
1/21/19

SIGNING, STREET TREE, LIGHTING & LANDSCAPE PLAN

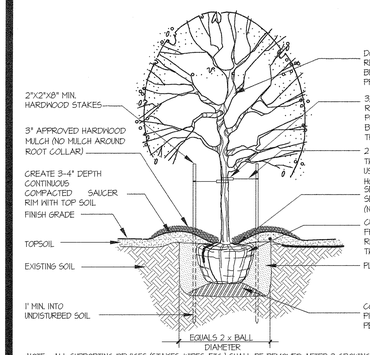
WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294
AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	12 OF 92

F 17-001

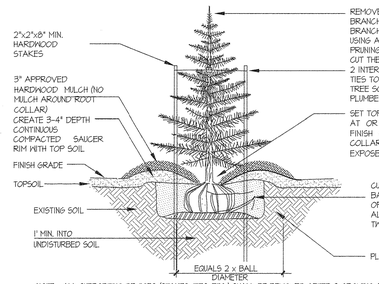
L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PH3)\13013_12-15_SSTL.dwg, 6/24/2019 2:23:41 PM, EDT, Jane R. Parks



NOTE: ALL SUPPORTING DEVICES (STAKES, WIRES, ETC.) SHALL BE REMOVED AFTER 2 GROWING SEASONS.

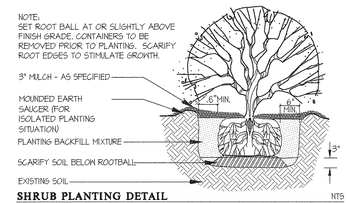
DECIDUOUS TREE PLANTING DETAIL NTS

FOR PLANTING MATERIAL UP TO 3 1/2" CALIPER



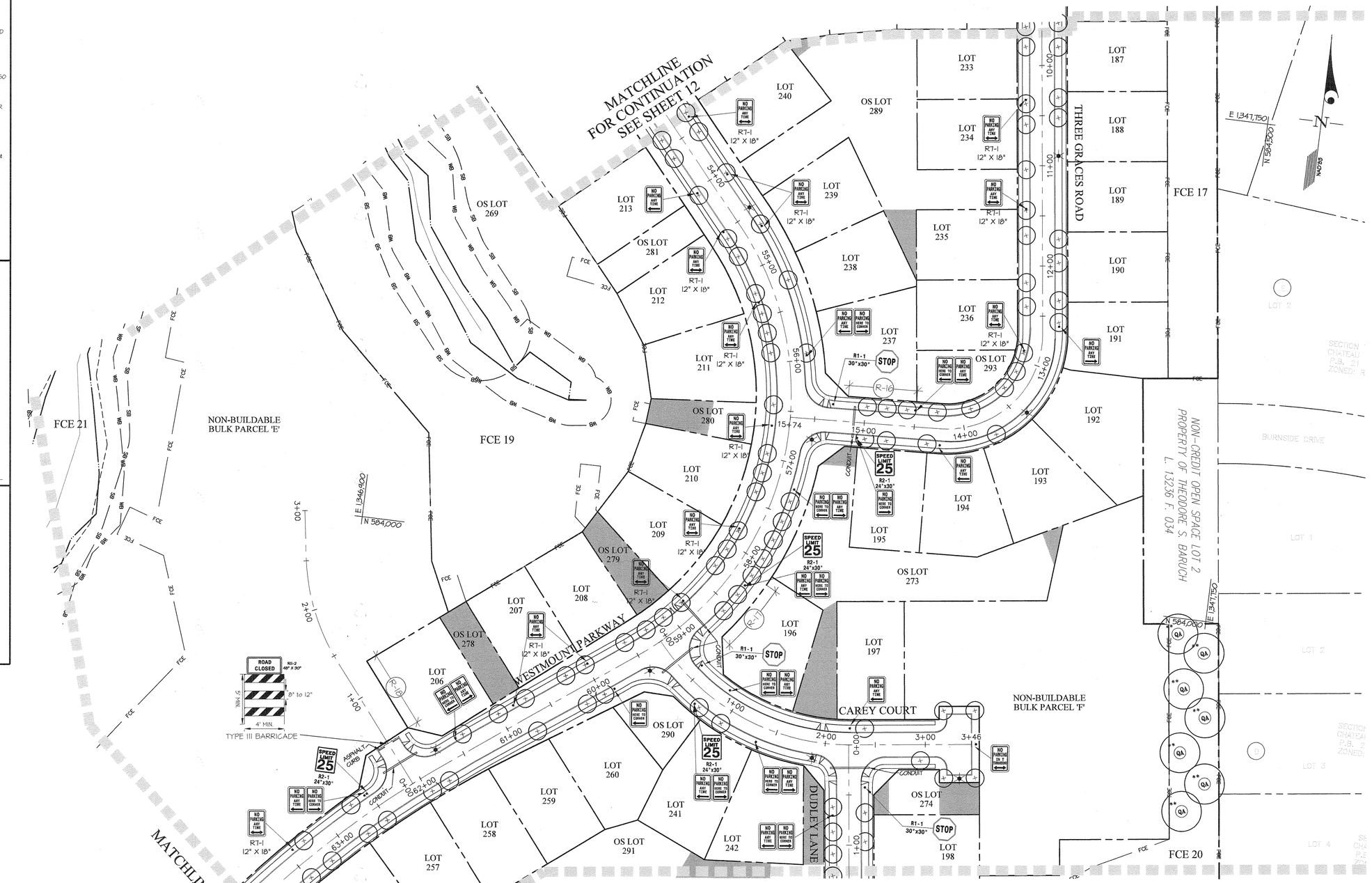
NOTE: ALL SUPPORTING DEVICES (STAKES, TIES, ETC.) SHALL BE REMOVED AFTER 2 GROWING SEASONS.

EVERGREEN TREE PLANTING DETAIL NTS



SHRUB PLANTING DETAIL NTS

NOTES:
1. STREET LIGHT CONDUIT SHALL BE SCHEDULE 80 PVC WITH PULL STRING.
2. STREET TREE REQUIREMENTS FOR THREE GRACES ROAD AND CAREY COURT HAVE BEEN MET BY PROVIDING A SURPLUS OF TREES ON OTHER STREETS THROUGHOUT THE SUBDIVISION. THE RESTRICTIONS PROVIDED BY DRIVEWAYS, STREET LIGHTS, AND UTILITIES HAVE PREVENTED THESE STREETS FROM MEETING THE REQUIREMENTS ON THEIR OWN.
3. SEE SHEET 15 FOR LANDSCAPING NOTES AND BUFFER INFORMATION.



GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.24.19

GLW PLANNING | ENGINEERING | SURVEYING
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DESIGNED BY:	JRD		
DRAWN BY:	JRD		
CHECKED BY:	DEV		

DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

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EXPIRATION DATE: MAY 26, 2020

STATE OF MARYLAND — CARLTON KENNETH GUTSCHICK — No. 12975 — PROFESSIONAL ENGINEER

1/2/19

SIGNING, STREET TREE, LIGHTING & LANDSCAPE PLAN

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	13 OF 92

F 17-001

MATCHLINE FOR CONTINUATION SEE SHEET 13

MATCHLINE FOR CONTINUATION SEE SHEET 13

FCE 21

FCE 20

OS LOT 268

N 563,650 E 1346,700

N 583,650 E 1341,500

N 583,100 E 1341,500

WESTMOUNT PARKWAY

CARLETON LANE

DUDLEY LANE

TEMPLETON LANE

FINDLEY LANE

LOT 254 LOT 253 LOT 252 LOT 251 LOT 250 LOT 249 LOT 248 LOT 247 LOT 246 LOT 245 LOT 244 LOT 243 OS LOT 291

OS LOT 292 OS LOT 293 LOT 261 LOT 266 LOT 262 LOT 263 LOT 264 LOT 265

OS LOT 294 LOT 199 OS LOT 275 LOT 200 OS LOT 276 LOT 201 LOT 202 OS LOT 277 LOT 203 LOT 204 LOT 205

RECREATIONAL OPEN SPACE LOT SIGN (SEE SHEET 15 FOR DETAIL)

MAIL PAVILION

NON-BUILDABLE BULK PARCEL 'E'

TYPE III BARRICADE

ASPHALT CURB

CONDUIT

NOTES:
1. STREET LIGHT CONDUIT SHALL BE SCHEDULE 80 PVC WITH PULL STRING.
2. STREET TREE REQUIREMENTS FOR THREE GRACES ROAD AND CAREY COURT HAVE BEEN MET BY PROVIDING A SURPLUS OF TREES ON OTHER STREETS THROUGHOUT THE SUBDIVISION. THE RESTRICTIONS PROVIDED BY DRIVEWAYS, STREET LIGHTS, AND UTILITIES HAVE PREVENTED THESE STREETS FROM MEETING THE REQUIREMENTS ON THEIR OWN.
3. SEE SHEET 15 FOR LANDSCAPING NOTES AND BUFFER INFORMATION.

GRAPHIC SCALE

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(IN FEET)
1 inch = 50 ft.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

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DESIGNED BY:				
JRD				
DRAWN BY:				
JRD				
CHECKED BY:				
DEV	2021-02-11	Revise striping at Mail Pavilion Parking	WGJ	DEV
	DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

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EXPIRATION DATE: MAY 26, 2020

1/2/19

SIGNING, STREET TREE, LIGHTING & LANDSCAPE PLAN

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	14 OF 92

F 17-001

EXTERNAL PERIMETER PLANTING SCHEDULE - SCHEDULE A

PERIMETER	LAND USE	ADJACENT LAND USE	TYPE OF BUFFER	LINEAR FEET OF ROADWAY FRONTAGE/ PERIMETER	NUMBER OF PLANTS REQUIRED				CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) DESCRIBE BELOW IF NEEDED.			CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) DESCRIBE BELOW IF NEEDED.	NUMBER OF PLANTS PROVIDED			
					SHADE TREES	ORNAMENTALS TREES	EVERGREEN TREES	MITIGATION TREES					SHADE TREES	ORNAMENTALS TREES	EVERGREEN TREES	MITIGATION TREES
PERIMETER 5	SFD RESIDENTIAL	SFD RESIDENTIAL	'A' Buffer	2,440'	41	---	---	---	YES	2,045'	SEE NOTE (2)	NO	7	---	---	---
PERIMETER 6	SFD RESIDENTIAL	SFD RESIDENTIAL	'A' Buffer	641'	11	---	---	---	YES	641'	SEE NOTE (2)	NO	0	EXISTING WOODLAND		---
PERIMETER 7	SFD RESIDENTIAL	SFD RESIDENTIAL	'A' Buffer	1,764'	30	---	---	---	YES	258'	SEE NOTE (1)	NO	25 (1)	---	---	---
PERIMETER 8	SFD RESIDENTIAL	SFD RESIDENTIAL	'A' Buffer	2,452'	41	---	---	---	YES	2,452'	SEE NOTE (2)	NO	0	EXISTING WOODLAND		---
SPECIMEN TREE MITIGATION	---	---	---	---	---	---	---	59	---			---	---	---	---	59

(1) PERIMETER BUFFER TO BE PLANTED WITH A FUTURE FINAL PLAN.

(2) CREDIT FOR FOREST RETENTION ALONG THIS PERIMETER.

PLANT LIST FOR SCHEDULE A

SYMBOL	QTY.	NAMES (BOTANICAL / SCIENTIFIC)	SIZE	ROOT/COMMENTS
SHADE TREES				
MA	15	ACER RUBRUM 'RED SUNSET'/ RED SUNSET RED MAPLE	2" CAL	B&B (Specimen Tree Mitigation)
MB	17	QUERCUS BICOLOR/ SWAMP WHITE OAK	2" CAL	B&B (Specimen Tree Mitigation)
MC	15	QUERCUS PALUSTRIS/ PIN OAK	2" CAL	B&B (Specimen Tree Mitigation)
MD	14	QUERCUS RUBRA/ NORTHERN RED OAK	2" CAL	B&B (Specimen Tree Mitigation)
QA	7	QUERCUS RUBRA/ NORTHERN RED OAK	2 1/2-3" CAL	B&B

NOTE: FOR SPECIMEN TREE MITIGATION PLANTING, SEE FOREST CONSERVATION PLANS, SHEETS 61-74

THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL WITH 68 SHADE TREES (@ $300.00 PER TREE).

SURETY CALCULATIONS: (FOR PERIMETERS REQUIRING PLANTINGS OR ALTERNATIVES, AND SPECIMEN TREE MITIGATION PLANTING PER WAIVER PETITION NO. WP-15-038)

PERIMETER 5: 7 SHADE TREES X $300 =$2,100.00

PERIMETER 7: 25 SHADE TREES X $300 =$0.00
(To be installed with future final plan)

MITIGATION TREES: 61 SHADE TREES X $300 =$18,300.00

TOTAL LANDSCAPE SURETY REQUIRED: 68 SHADE TREES X $300 =$20,400.00
(To be posted w/ the developer agreement)

STREET TREE REQUIREMENTS

ROAD	LENGTH OF CURB (L.F.)	# OF TREES REQUIRED	# OF TREES PROVIDED	NAME (BOTANICAL/COMMON)	SIZE	REMARKS
THREE GRACES ROAD	2,920	73	68	LIQUIDAMBAR STYRACIFLUA 'ROTUNDILOBA' / ROTUNDILOBA SWEETGUM (SEEDLESS ONLY)	2-1/2" CAL.	B&B - FULL HEADS, MIN. 6' BRANCHING HT.
WALPOLE WAY	799	20	20	ACER SACCHARUM 'GREEN MOUNTAIN' / GREEN MOUNTAIN SUGAR MAPLE	2-1/2" CAL.	B&B - FULL HEADS, MIN. 6' BRANCHING HT.
CAREY COURT	616	15	8	ACER RUBRUM 'ARMSTRONG' / ARMSTRONG COLUMNAR RED MAPLE	2-1/2" CAL.	B&B - FULL HEADS, MIN. 6' BRANCHING HT.
DUDLEY LANE	1,171	29	36	ACER RUBRUM 'ARMSTRONG' / ARMSTRONG COLUMNAR RED MAPLE	2-1/2" CAL.	B&B - FULL HEADS, MIN. 6' BRANCHING HT.
CARLETON LANE	1,263	32	33	ACER RUBRUM 'ARMSTRONG' / ARMSTRONG COLUMNAR RED MAPLE	2-1/2" CAL.	B&B - FULL HEADS, MIN. 6' BRANCHING HT.
FINDLEY LANE	815	20	22	ACER RUBRUM 'ARMSTRONG' / ARMSTRONG COLUMNAR RED MAPLE	2-1/2" CAL.	B&B - FULL HEADS, MIN. 6' BRANCHING HT.
TEMPLETON LANE	914	23	21	ACER SACCHARUM 'GREEN MOUNTAIN' / GREEN MOUNTAIN SUGAR MAPLE	2-1/2" CAL.	B&B - FULL HEADS, MIN. 6' BRANCHING HT.
WESTMOUNT PARKWAY	4,264	107	122	STA. 44+30 TO 49+30 QUERCUS RUBRA / RED OAK STA. 44+70 TO 68+25 ZELKOVA SERRATA 'VILLAGE GREEN' / VILLAGE GREEN JAPANESE ZELKOVA	2-1/2" CAL.	B&B - FULL HEADS, MIN. 6' BRANCHING HT.
	TOTAL	319	336			

MINIMUM TREE QUANTITIES AND PREFERRED SPACING ARE AS FOLLOWS:
1 TREE PER 40 LINEAR FEET, BOTH SIDES, FOR ALL STREET.

LANDSCAPING NOTES:

1. STREET TREES ARE BEING PROVIDED AS PART OF THIS FINAL PLAN.
2. INTERNAL PLANTING WILL BE PROVIDED WITH THE SITE DEVELOPMENT PLANS.
3. THE BUFFERS SHOWN IN THE SCHEDULES ARE IN ACCORDANCE WITH THE LANDSCAPE MANUAL. THE FOLLOWINGS ARE THE MINIMUM PLANTING TO BE PROVIDED ALONG A PERIMETER EDGE:

PERIMETER LANDSCAPE TYPES - BASED ON ADJACENT LAND USE

LANDSCAPE EDGE TYPE	LANDSCAPE CHARACTER	SHADE TREES/ LINEAR FEET	EVERGREEN TREES/ LINEAR FEET	SHRUBS/ LINEAR FEET
A	LIGHT BUFFER	1:60	0	0
B	MODERATE BUFFER	1:50	1:40	0

2 SMALL DECIDUOUS TREES MAY BE SUBSTITUTED FOR 1 SHADE TREE
2 EVERGREEN TREES MAY BE SUBSTITUTED FOR 1 SHADE TREE
10 SHRUBS MAY BE SUBSTITUTED FOR 1 SHADE TREE OR EVERGREEN TREE

4. AFFORESTATION PLANTING SIZE SHALL BE LARGE ENOUGH TO MEET THE LANDSCAPE BUFFERING REQUIREMENT ALONG EXTERNAL PERIMETERS WHERE APPLICABLE.
5. UNLESS NOTED, ALL STEEP SLOPES AREAS WITHIN THE LIMITS OF SUBMISSION ARE LESS THAN 5,000 S.F.
6. STREET TREES SHALL BE PLACED A MINIMUM OF 15' FROM ALL SIGNS AND INTERSECTIONS WHEN PLANTED BETWEEN THE SIDEWALK AND CURB, AND BE LOCATED WITH CONSIDERATION TO UNDERGROUND UTILITIES AND STRUCTURES. STREET TREES MAY NOT BE PLANTED WITHIN 5' OF A DRAIN INLET STRUCTURE, WITHIN 5' OF AN OPEN SPACE ACCESS STRIP, AND WITHIN 10' OF A DRIVEWAY. A 20' MINIMUM DISTANCE SHALL BE MAINTAINED BETWEEN ANY TREES LOCATED ALONG THE CURB LINE AND ANY STREET LIGHT. FINAL PLACEMENT OF THE STREET TREES WILL BE DETERMINED IN THE FIELD BY THE DEPARTMENT OF PUBLIC WORKS TO BEST ACCOMMODATE THESE SETBACKS WHILE PROVIDING THE MAXIMUM NUMBER OF STREET TREES REQUIRED.
7. ALL PAVEMENT MARKINGS AND SIGN LOCATIONS SHALL BE APPROVED BY HOWARD COUNTY TRAFFIC DIVISION PRIOR TO ANY INSTALLATION (410-313-5152).
8. TREES CANNOT BE PLANTED WITHIN 40' OF STOP SIGN LOCATIONS ON THE APPROACH SIDE FOR VISIBILITY CONCERNS.

NOTES:

1. AT THE TIME OF PLANT INSTALLATION, ALL SHRUBS AND TREES LISTED AND APPROVED ON THE LANDSCAPE PLAN, SHALL COMPLY WITH THE PROPER HEIGHT REQUIREMENT IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATIONS OF THE REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THE APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO THE APPLICABLE PLANS.
2. THE OWNER AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIAL TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.24.19

THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL WITH 336 SHADE TREES (@ $300.00 PER TREE)

SURETY CALCULATIONS: (FOR STREET TREES)

STREET TREES: 336 STREET TREES X $300 =$100,800.00

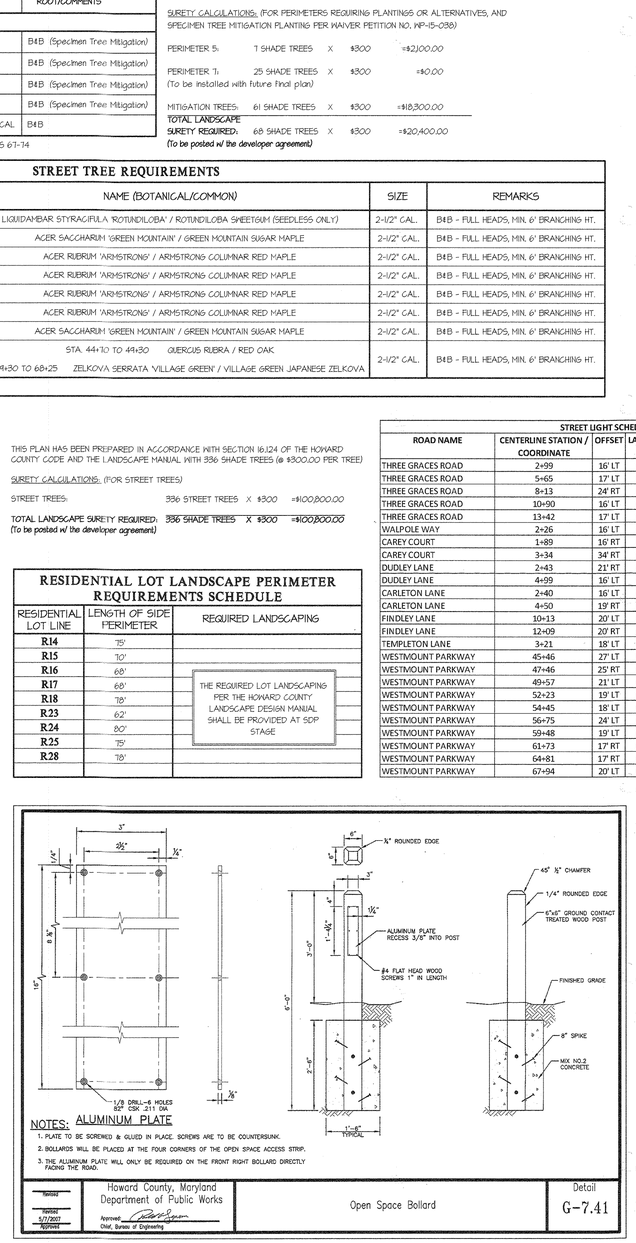
TOTAL LANDSCAPE SURETY REQUIRED: ~~336 SHADE TREES X $300 =$100,800.00~~
(To be posted w/ the developer agreement)

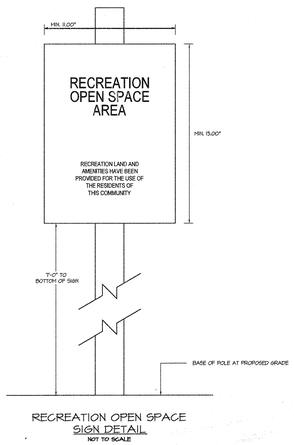
RESIDENTIAL LOT LANDSCAPE PERIMETER REQUIREMENTS SCHEDULE

RESIDENTIAL LOT LINE	LENGTH OF SIDE PERIMETER	REQUIRED LANDSCAPING
R14	75'	
R15	70'	
R16	68'	THE REQUIRED LOT LANDSCAPING PER THE HOWARD COUNTY LANDSCAPE DESIGN MANUAL SHALL BE PROVIDED AT SDP STAGE
R17	68'	
R18	78'	
R23	62'	
R24	80'	
R25	75'	
R28	78'	

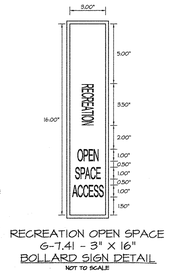
STREET LIGHT SCHEDULE

ROAD NAME	CENTERLINE STATION / COORDINATE	OFFSET	LAMP TYPE	FIXTURE	POLE TYPE
THREE GRACES ROAD	2+99	16' LT	100 LED	COLONIAL POST	14' BLACK FIBERGLASS
THREE GRACES ROAD	5+65	17' LT	100 LED	COLONIAL POST	14' BLACK FIBERGLASS
THREE GRACES ROAD	8+13	24' RT	100 LED	COLONIAL POST	14' BLACK FIBERGLASS
THREE GRACES ROAD	10+90	16' LT	100 LED	COLONIAL POST	14' BLACK FIBERGLASS
THREE GRACES ROAD	13+42	17' LT	100 LED	COLONIAL POST	14' BLACK FIBERGLASS
WALPOLE WAY	2+26	16' LT	100 LED	COLONIAL POST	14' BLACK FIBERGLASS
CAREY COURT	1+89	16' RT	100 LED	COLONIAL POST	14' BLACK FIBERGLASS
CAREY COURT	3+34	34' RT	100 LED	COLONIAL POST	14' BLACK FIBERGLASS
DUDLEY LANE	2+43	21' RT	100 LED	COLONIAL POST	14' BLACK FIBERGLASS
DUDLEY LANE	4+99	16' LT	100 LED	COLONIAL POST	14' BLACK FIBERGLASS
CARLETON LANE	2+40	16' LT	150 LED	COLONIAL POST	14' BLACK FIBERGLASS
CARLETON LANE	4+50	19' RT	100 LED	COLONIAL POST	14' BLACK FIBERGLASS
FINDLEY LANE	10+13	20' LT	100 LED	COLONIAL POST	14' BLACK FIBERGLASS
FINDLEY LANE	12+09	20' RT	100 LED	COLONIAL POST	14' BLACK FIBERGLASS
TEMPLETON LANE	3+21	18' LT	100 LED	COLONIAL POST	14' BLACK FIBERGLASS
WESTMOUNT PARKWAY	45+46	27' LT	150 LED	COLONIAL POST	14' BLACK FIBERGLASS
WESTMOUNT PARKWAY	47+46	25' RT	150 LED	COLONIAL POST	14' BLACK FIBERGLASS
WESTMOUNT PARKWAY	49+57	21' LT	100 LED	COLONIAL POST	14' BLACK FIBERGLASS
WESTMOUNT PARKWAY	52+23	19' LT	100 LED	COLONIAL POST	14' BLACK FIBERGLASS
WESTMOUNT PARKWAY	54+45	18' LT	100 LED	COLONIAL POST	14' BLACK FIBERGLASS
WESTMOUNT PARKWAY	56+75	24' LT	100 LED	COLONIAL POST	14' BLACK FIBERGLASS
WESTMOUNT PARKWAY	59+48	19' LT	100 LED	COLONIAL POST	14' BLACK FIBERGLASS
WESTMOUNT PARKWAY	61+73	17' RT	100 LED	COLONIAL POST	14' BLACK FIBERGLASS
WESTMOUNT PARKWAY	64+81	17' RT	100 LED	COLONIAL POST	14' BLACK FIBERGLASS
WESTMOUNT PARKWAY	67+94	20' LT	100 LED	COLONIAL POST	14' BLACK FIBERGLASS

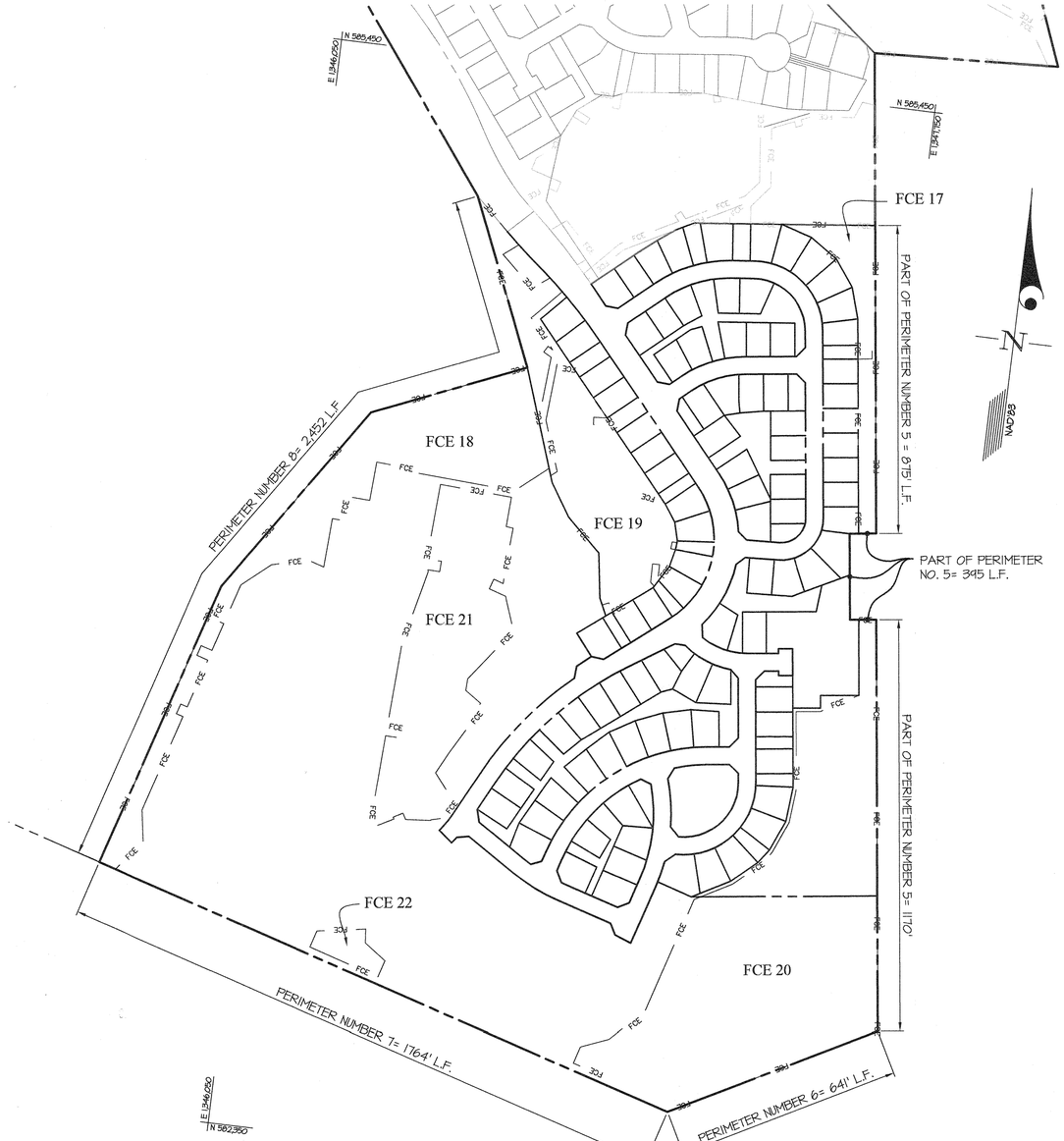




RECREATION OPEN SPACE SIGN DETAIL
NOT TO SCALE



RECREATION OPEN SPACE
G-7.41 - 3' X 16'
BOLLARD SIGN DETAIL
NOT TO SCALE



GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)
1 inch = 200 ft.

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DRAWN BY:				
JRD				
CHECKED BY:				
DEV				
DATE	REVISION		BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975
EXPIRATION DATE: MAY 26, 2020

1/2/19

STATE OF MARYLAND — CARLTON KENNETH GIBSON — 12975 — REGISTERED PROFESSIONAL ENGINEER

SIGNING, STREET TREE, LIGHTING & LANDSCAPE PLAN

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=200'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	15 OF 92

F 17-001

L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-50 (PH3)\13013_12-15_SST1.dwg, 12/15/2018 8:31:37 AM, Jennifer R. Ross

THE PURPOSE OF THIS PLAN IS TO CLEARLY SHOW THE GRADING THAT WILL BE USED ON OTHER SHEETS IN THE PLAN SET FOR THE DESIGN OF THE STORM DRAINS, STORMWATER MANAGEMENT AND SEDIMENT CONTROL.

LEGEND

- RAIN BARREL (M-1)
- DRY WELL (M-5)
- 15' — ROOFTOP DISCONNECT (N-1)
- 20' NRD — NON-ROOFTOP DISCONNECT (N-2)
- 100' SFB — SHEET FLOW TO BUFFER (N-3)
- MBR-100 — MICRO BIO-RETENTION FACILITY (M-6)
- LEVEL SPREADING DEVICE
- YARD INLET (HO. CO. STD. D-4.14)
- ACCESS POINT TO MICRO-BIORETENTION FACILITY (SIDEWALK WITHIN THIS REGION SHOULD BE REINFORCED CONCRETE)
- 10' WATER/SEWER OFFSET UTILITY EASEMENT WITHIN BRL
- —LOD-SM— Limit of Disturbance for the Stream Mitigation Work

NOTES:

1. SEE SHEETS 34-41 FOR THE SEDIMENT CONTROL PLANS.
2. SEE SHEETS 46-47 FOR THE TEMPORARY STORMWATER MANAGEMENT DRAINAGE AREA MAPS.
3. SEE SHEETS 48-49 FOR THE EARTH DIKE TREATMENT PLAN.
4. SEE SHEETS 53-55 FOR THE STORMWATER MANAGEMENT DRAINAGE AREA MAPS.
5. SEE SHEET 21 FOR PROPOSED STORM DRAIN SYSTEM INFORMATION.
6. GUARDRAIL PER SHA DETAILS MD-605.21 AND MD-605.22 WITH MD-605.10-02 END TREATMENT.
7. TYPE III CHAIN LINK (5'-0" HIGH) SAFETY FENCE ALONG HEADWALL, ENDWALL, AND WING WALLS.
8. SEE SHEETS 12-14 FOR LOCATIONS OF "NO PARKING" SIGNAGE.
9. ⚠ See sheets 85-89 for work being performed within the limit of disturbance for the stream mitigation. Limit of work indicated by —LOD-SM—

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.24.19

GLW
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3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

	DATE	REVISION	BY	APP'R.
DESIGNED BY: JRD				
DRAWN BY: JRD				
CHECKED BY: DEV	2021-03-17	⚠2 REVISE MICRO-BIO GRADING	HKJ	DEV
	2020-4-22	⚠1 showed stream mitigated work area, added note 9 to indicate where the info. can be found w/in plan set & rev. address	klp	

PREPARED FOR: ⚠1
WESTMOUNT DEVELOPMENT CORPORATION
307 International Circle, Suite 130
Hunt Valley, MD 21030
410-489-4489
Attn.: Robert Goodier

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975, EXPIRATION DATE: MAY 26, 2020
1/2/19

STATE OF MARYLAND — CARLTON KENNETH GUTSCHICK — NO. 12975 — PROFESSIONAL ENGINEER

GRADING PLAN

WESTMOUNT · PHASE 3

LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F

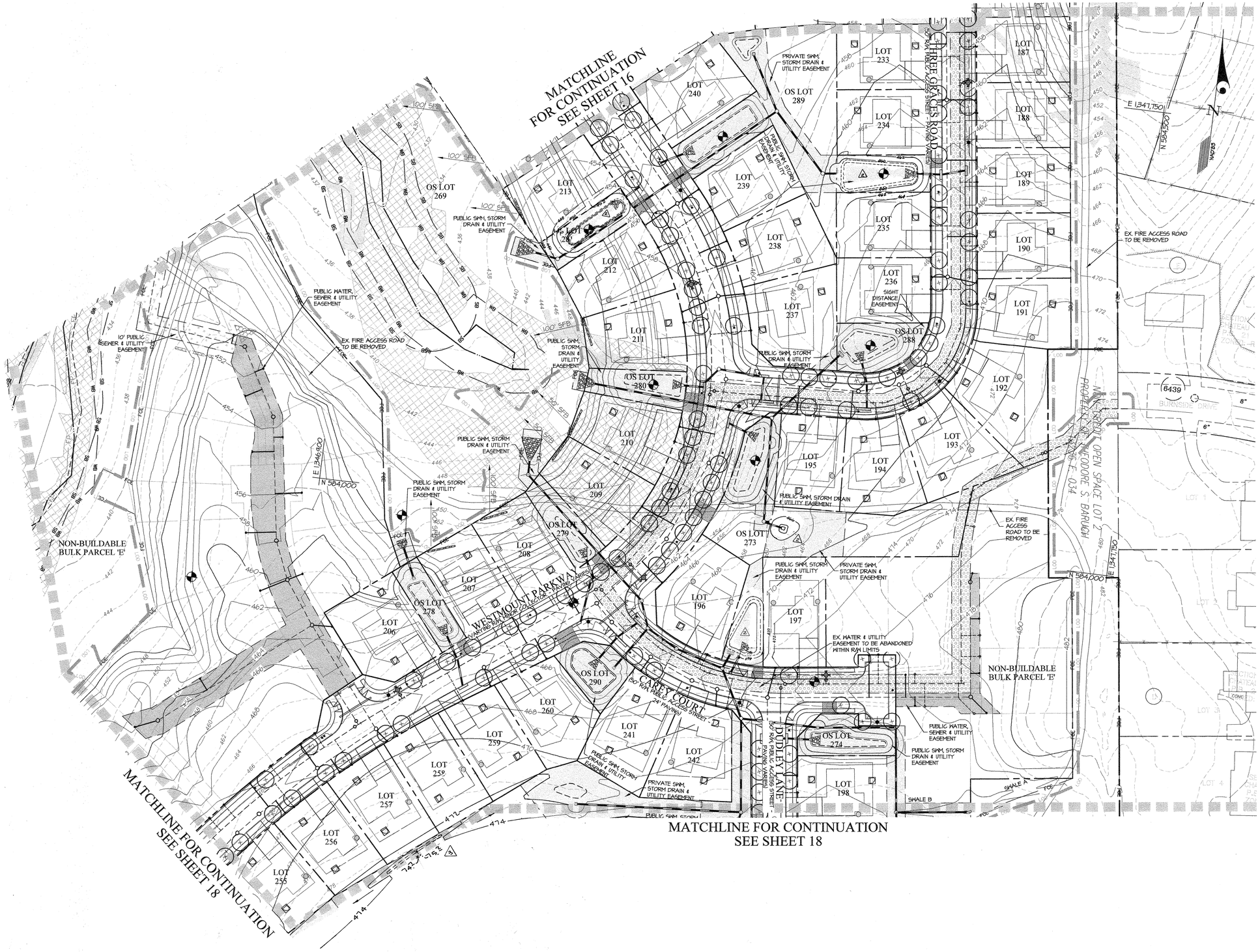
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	16 OF 92

L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PH3)\13013_16-20_GRADING.dwg, PLOTTED:12/27/2018 3:36 PM, LAST SAVED:12/10/2018 12:53 PM, PLOTTED BY: Jennifer R. Dicks

THE PURPOSE OF THIS PLAN IS TO CLEARLY SHOW THE GRADING THAT WILL BE USED ON OTHER SHEETS IN THE PLAN SET FOR THE DESIGN OF THE STORM DRAINS, STORMWATER MANAGEMENT AND SEDIMENT CONTROL.



NOTES:
1. SEE SHEETS 34-41 FOR THE SEDIMENT CONTROL PLANS.
2. SEE SHEETS 46-47 FOR THE TEMPORARY STORMWATER MANAGEMENT DRAINAGE AREA MAPS.
3. SEE SHEETS 48-49 FOR THE EARTH DIKE TREATMENT PLAN.
4. SEE SHEETS 53-55 FOR THE STORMWATER MANAGEMENT DRAINAGE AREA MAPS.
5. SEE SHEET 22 FOR PROPOSED STORM DRAIN SYSTEM INFORMATION.
6. SEE SHEETS 12-14 FOR LOCATIONS OF "NO PARKING" SIGNAGE.

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6-24-19

GLW PLANNING | ENGINEERING | SURVEYING
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PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:				
JRD				
DRAWN BY:				
JRD				
CHECKED BY:	2021-06-11	⚠ Revise Swale Grading	WJ	DEV
DEV	2021-05-17	⚠ REVISE GRADING AT MICRO-BIOS AND STORM DRAIN DEPRESSION, REV. SD PIPE & INLET	HJ	DEV
	DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975 EXPIRATION DATE: MAY 26, 2020

STATE OF MARYLAND — GREGORY JEFFREY GRIMSEY — No. 12975 — PROFESSIONAL ENGINEER

1/2/19

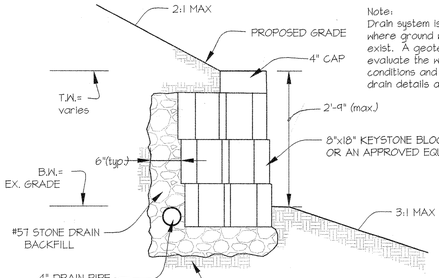
GRADING PLAN

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	17 OF 92

F 17-001



WALL DETAIL

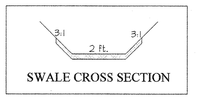
NOT TO SCALE

Note:
Drain system is suitable for wall sites where ground water seepage does not exist. A geotechnical engineer shall evaluate the wall site for groundwater conditions and provide alternative wall drain details as needed.

LOCATION	TOP OF WALL	BOTTOM OF WALL
A	460.6	460.6
B	464.8	462.0
C	464.8	463.0
D	460.0	460.0

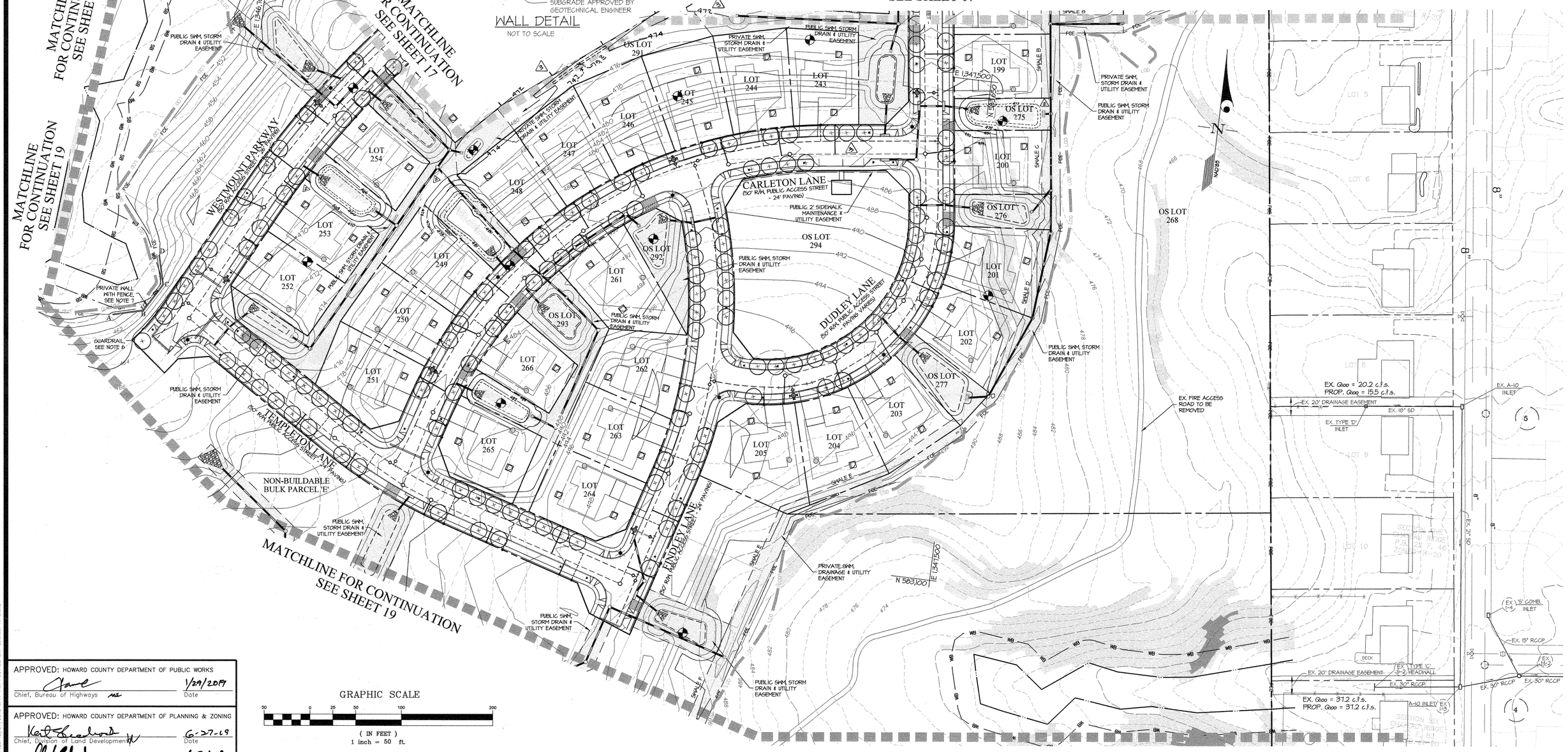
NOTES:
1. SEE SHEETS 34-41 FOR THE SEDIMENT CONTROL PLANS.
2. SEE SHEETS 46-47 FOR THE TEMPORARY STORMWATER MANAGEMENT DRAINAGE AREA MAPS.
3. SEE SHEETS 48-49 FOR THE EARTH DIKE TREATMENT PLAN.
4. SEE SHEETS 53-55 FOR THE STORMWATER MANAGEMENT DRAINAGE AREA MAPS.
5. SEE SHEET 23 FOR PROPOSED STORM DRAIN SYSTEM INFORMATION.
6. GUARDRAIL PER SHA DETAILS MD-605.21 AND MD-605.22 WITH MD-605.10-02 END TREATMENT.
7. TYPE III CHAIN LINK (5'-0" HIGH) SAFETY FENCE ALONG PRIVATE WALL.
8. SEE SHEETS 12-14 FOR LOCATIONS OF "NO PARKING" SIGNAGE.

THE PURPOSE OF THIS PLAN IS TO CLEARLY SHOW THE GRADING THAT WILL BE USED ON OTHER SHEETS IN THE PLAN SET FOR THE DESIGN OF THE STORM DRAINS, STORMWATER MANAGEMENT AND SEDIMENT CONTROL.



SWALE CROSS SECTION

SWALE	DRAINAGE AREA (ac.)	Q_{100} (cfs)	V_{100} (fps)	FLOW DEPTH (ft)	SHEAR STRESS (lb/sf)
A	0.33	1.44	2.87	0.19	0.34
B	0.21	1.17	2.43	0.19	0.28
C	0.08	0.43	1.48	0.12	0.12
D	0.22	1.08	3.15	0.14	0.52
E	0.48	2.19	2.56	0.30	0.28
F	0.26	1.21	2.71	0.18	0.36



GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.24.19

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PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

	DESIGNED BY:	DRAWN BY:	CHECKED BY:
	JRD	JRD	DEV

DATE	REVISION	BY	APP'R.
2021-04-14	1 Revise swale grading	WSJ	DEV
2021-03-17	2 REVISE MICRO-BIO GRADING	HKJ	DEV

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12976
EXPIRATION DATE: MAY 26, 2020
1/2/19

STATE OF MARYLAND — GRADED ENGINEER DIRECTION — PROFESSIONAL ENGINEER

GRADING PLAN

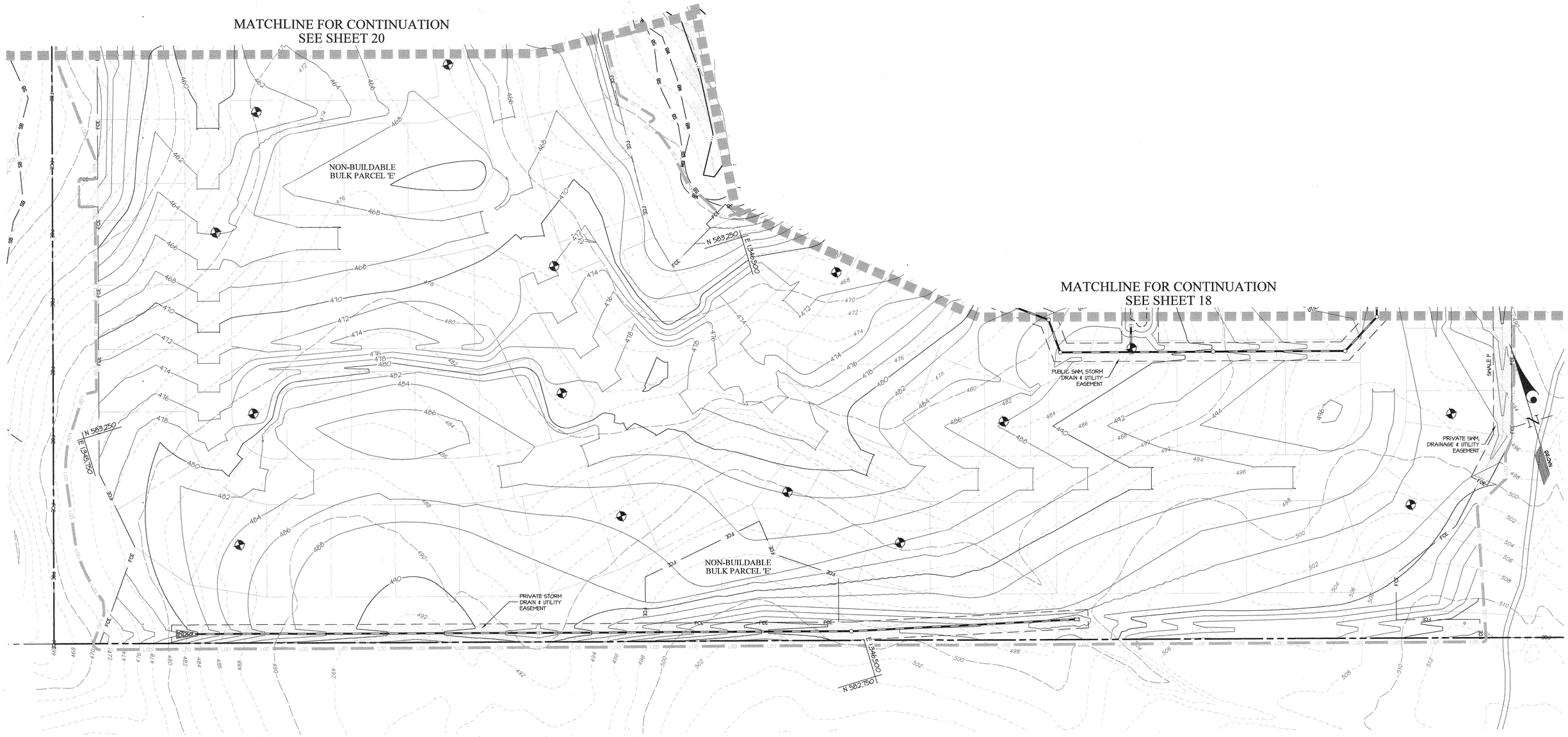
WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	18 OF 92

F 17-001

THE PURPOSE OF THIS PLAN IS TO CLEARLY SHOW THE GRADING THAT WILL BE USED ON OTHER SHEETS IN THE PLAN SET FOR THE DESIGN OF THE STORM DRAINS, STORMWATER MANAGEMENT AND SEDIMENT CONTROL.



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6.27.19

Chief, Development Engineering Division — Date 6.24.19

NOTES:
1. SEE SHEETS 34-41 FOR THE SEDIMENT CONTROL PLANS.
2. SEE SHEETS 46-47 FOR THE TEMPORARY STORMWATER MANAGEMENT DRAINAGE AREA MAPS.
3. SEE SHEETS 48-49 FOR THE EARTH DIKE TREATMENT PLAN.
4. SEE SHEETS 53-55 FOR THE STORMWATER MANAGEMENT DRAINAGE AREA MAPS.

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

GLW
PLANNING | ENGINEERING | SURVEYING
3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:	DATE	REVISION	BY	APP'R.
JRD				
DRAWN BY: JRD				
CHECKED BY: DEV				

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975 EXPIRATION DATE: MAY 26, 2020

1/2/19

STATE OF MARYLAND — CAMERON KENNETH GORDON — PROFESSIONAL ENGINEER

GRADING PLAN

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	19 OF 92

F 17-001

THE PURPOSE OF THIS PLAN IS TO CLEARLY SHOW THE GRADING THAT WILL BE USED ON OTHER SHEETS IN THE PLAN SET FOR THE DESIGN OF THE STORM DRAINS, STORMWATER MANAGEMENT AND SEDIMENT CONTROL.

NOTES:
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4. SEE SHEETS 53-55 FOR THE STORMWATER MANAGEMENT DRAINAGE AREA MAPS.

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.24.19

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DESIGNED BY:	DATE	REVISION	BY	APP'R.
JRD				
DRAWN BY: JRD				
CHECKED BY: DEV				

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION.
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1/2/19

STATE OF MARYLAND — CARLTON KENNETH GIPSON — NO. 12975 — REGISTERED PROFESSIONAL ENGINEER

GRADING PLAN

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	20 OF 92

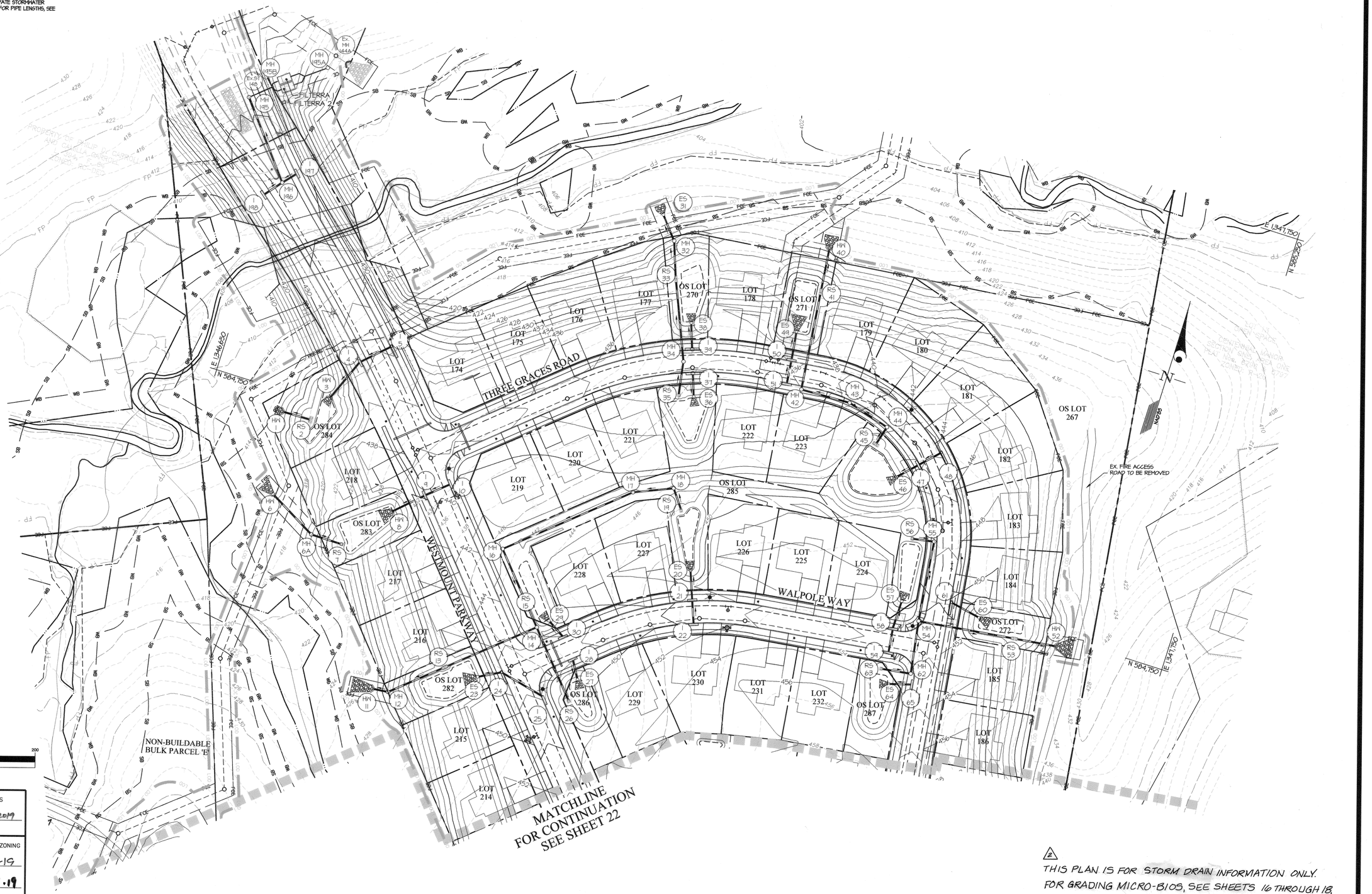
F 17-001

FROM NO.	TO NO.	DIA. (IN.) & TYPE OF PIPE	L (ft)
I-5	I-4	15" HDPE	36
I-4	MH-3	15" RCP III	50
MH-3	RS-2	---	---
RS-2	MH-1	15" RCP III	30
I-10	I-9	15" HDPE	28
I-9	MH-8	15" RCP III	34
MH-8	RS-7	---	---
RS-7	MH-6A	15" HDPE	32
MH-6A	ES-6	15" RCP III	61
I-22	I-21	15" HDPE	24
I-21	ES-20	15" RCP III	33
ES-20	RS-19	---	---
RS-19	MH-18	15" HDPE	23
MH-18	MH-17	15" HDPE	42
MH-17	MH-16	15" HDPE	154
MH-16	RS-15	15" HDPE	61
I-30	ES-29	15" RCP III	25
ES-29	RS-15	---	---
RS-15	MH-14	15" HDPE	27
I-28	ES-27	15" RCP III	23
ES-27	RS-26	---	---
RS-26	MH-14	15" HDPE	86
MH-14	RS-13	15" HDPE	107
I-25	I-24	15" HDPE	54
I-24	ES-23	15" RCP III	27
ES-23	RS-13	---	---
RS-13	MH-12	15" HDPE	64
MH-12	MH-11	15" RCP III	14
I-37	ES-36	15" RCP III	26
ES-36	RS-35	---	---
RS-35	MH-34	15" HDPE	34
MH-34	RS-33	15" HDPE	88
I-39	ES-38	15" RCP III	24
ES-38	RS-33	---	---
RS-33	MH-32	15" HDPE	38
MH-32	MH-31	18" RCP III	31
I-48	I-47	15" HDPE	26
I-47	ES-46	15" RCP III	28
ES-46	RS-45	---	---
RS-45	MH-44	15" HDPE	19
MH-44	MH-43	15" HDPE	46
MH-43	MH-42	15" HDPE	52
MH-42	RS-41	15" HDPE	106
I-51	I-50	15" HDPE	24
I-50	ES-49	15" RCP III	32
ES-49	RS-41	---	---
RS-41	MH-40	15" RCP IV	45
I-65	ES-64	15" RCP III	26
ES-64	RS-63	---	---
RS-63	MH-62	15" HDPE	30
MH-62	MH-54	15" HDPE	55
I-59	I-58	15" HDPE	24
I-58	ES-57	15" RCP III	33
ES-57	RS-56	---	---
RS-56	MH-55	15" HDPE	21
MH-55	MH-54	15" HDPE	86
MH-54	RS-53	15" HDPE	104
I-61	ES-60	15" RCP III	35
ES-60	RS-53	---	---
RS-53	MH-52	15" RCP III	44
I-198	MH-196	15" HDPE	22
I-197	MH-196	15" HDPE	17
MH-196	MH-195	15" HDPE	98
MH-195	MH-195B	6" PVC	26

FOR RIP RAP INFORMATION, SEE STORM DRAIN PROFILES, SHEETS 27-33.

FOR MICRO-BIORETENTION UNDERDRAIN PIPE LENGTHS, SEE SHEET 56.

STORM DRAIN RUN FROM MH-195B TO MH-195A IS PRIVATE STORMWATER MANAGEMENT. FOR PIPE LENGTHS, SEE SHEET 56.



GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-21-19

Chief, Development Engineering Division — Date 6.24.19

2 THIS PLAN IS FOR STORM DRAIN INFORMATION ONLY. FOR GRADING MICRO-BIOS, SEE SHEETS 16 THROUGH 18, AND DETAILS ON SHEETS 56 THROUGH 64.

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3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:				
JRD				
DRAWN BY:				
JRD				
CHECKED BY:				
DEV				
2021-03-17	2 ADDED PURPOSE NOTE		HKJ	DEV
DATE	REVISION		BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

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STATE OF MARYLAND — JOSEPH KENNETH GUNTER — 12975 — PROFESSIONAL ENGINEER

12/19

STORM DRAIN INFORMATION PLAN

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	21 OF 92

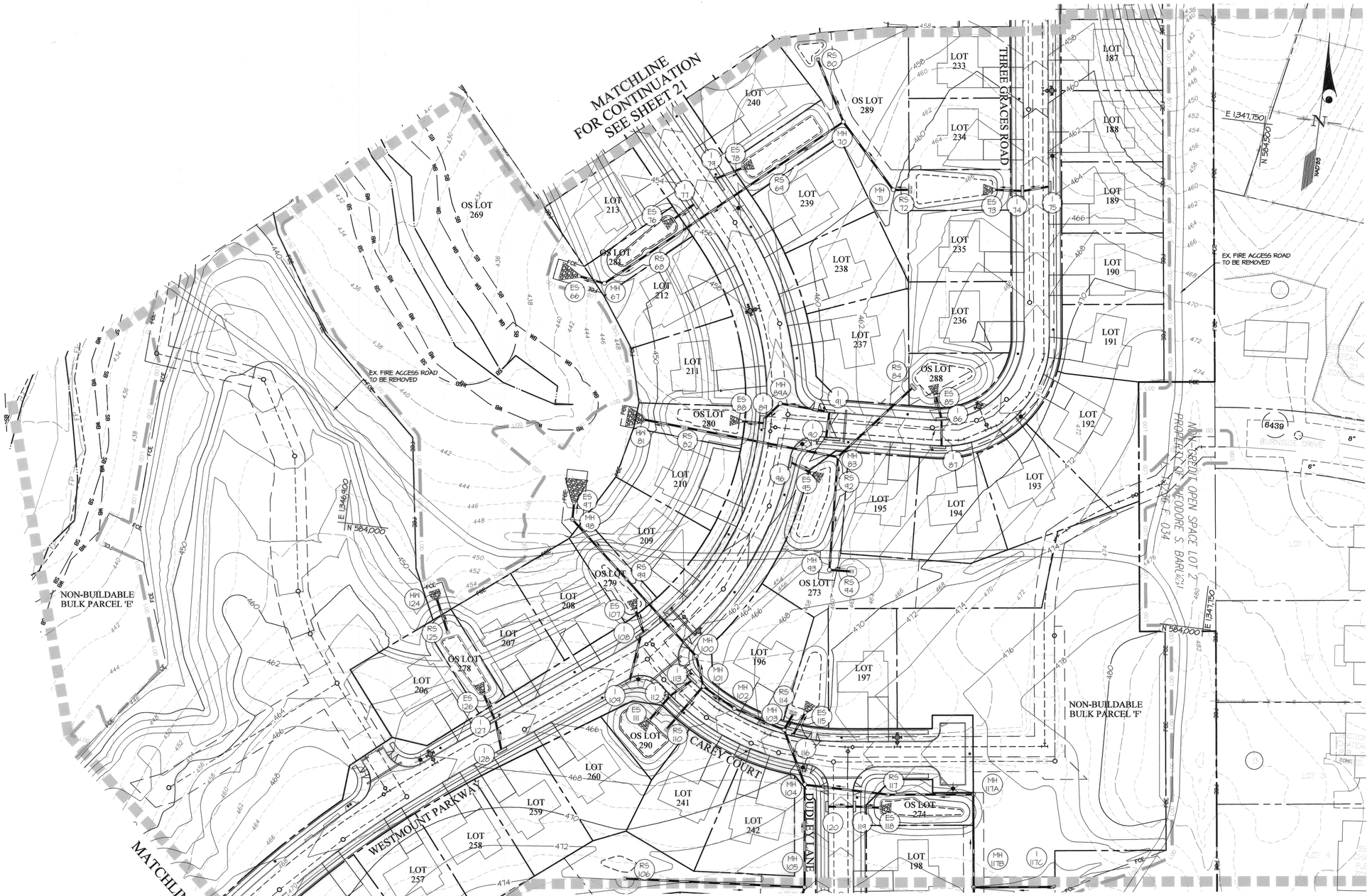
F 17-001

L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PH3)\13013_21-23_SD INFO.dwg, 6/24/2019 8:27:11 AM, JDavis

FROM NO.	TO NO.	DIA. (IN) & TYPE OF PIPE	L (ft)
I-75	I-74	15" HDPE	25
I-74	ES-73	15" RCP III	28
ES-73	RS-72	---	---
RS-72	MH-71	15" HDPE	13
MH-71	MH-70	15" HDPE	74
RS-80	MH-70	15" HDPE	63
MH-70	RS-64	15" HDPE	75
I-74	ES-78	15" RCP III	24
ES-78	RS-64	---	---
RS-64	RS-68	18" HDPE	151
I-77	ES-76	15" RCP III	26
ES-76	RS-68	---	---
RS-68	MH-67	18" HDPE	48
MH-67	ES-66	18" RCP III	25
I-87	I-86	15" HDPE	26
I-86	ES-85	15" RCP III	24
ES-85	RS-84	---	---
RS-84	MH-83	15" HDPE	48
RS-44	MH-43	15" HDPE	19
MH-43	RS-42	15" HDPE	82
I-46	ES-45	15" RCP III	24
ES-45	RS-42	---	---
RS-42	MH-83	15" HDPE	23
MH-83	RS-82	18" HDPE	150
I-90	I-91	15" HDPE	25
I-91	MH-84A	15" HDPE	46
MH-84A	I-94	15" HDPE	22
I-94	ES-88	15" RCP III	24
ES-88	RS-82	---	---
RS-82	MH-81	18" RCP III	39
RS-106	MH-105	15" HDPE	174
MH-105	MH-104	15" HDPE	97
I-120	I-119	15" HDPE	24
I-119	ES-118	15" RCP III	26
ES-118	RS-117	---	---
I-117C	MH-117B	15" HDPE	74
MH-117B	MH-117A	18" HDPE	87
MH-117A	RS-117	18" HDPE	80
RS-117	MH-104	21" HDPE	80
MH-104	MH-103	21" HDPE	54
I-116	ES-115	15" RCP III	26
ES-115	RS-114	---	---
RS-114	MH-103	15" HDPE	16
MH-103	MH-102	21" HDPE	50
MH-102	MH-101	21" HDPE	34
I-113	I-112	15" HDPE	25
I-112	ES-111	15" RCP III	31
ES-111	RS-110	---	---
RS-110	MH-101	15" HDPE	53
MH-101	MH-100	24" HDPE	26
MH-100	RS-99	24" HDPE	99
I-109	I-108	15" HDPE	44
I-108	ES-107	15" RCP III	25
ES-107	RS-99	---	---
RS-99	MH-98	24" HDPE	76
MH-98	ES-97	30" RCP III	16
I-128	I-127	15" HDPE	24
I-127	ES-126	15" RCP III	28
ES-126	RS-125	---	---
RS-125	MH-124	15" RCP III	33

FOR RIP RAP INFORMATION, SEE STORM DRAIN PROFILES, SHEETS 21-33.

FOR MICRO-BIORETENTION UNDERDRAIN PIPE LENGTHS, SEE SHEET 52.



GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.24.19

⚠2 THIS PLAN IS FOR STORM DRAIN INFORMATION ONLY. FOR GRADING MICRO-BIOS, SEE SHEETS 16 THROUGH 18, AND DETAILS ON SHEETS 56 THROUGH 64.

GLW PLANNING | ENGINEERING | SURVEYING

3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:				
JRD				
DRAWN BY:				
JRD				
CHECKED BY:				
DEV	2021-03-17	⚠2 ADDED PURPOSE NOTE	JKJ	DEV
	DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975 EXPIRATION DATE: MAY 26, 2020

STATE OF MARYLAND — GORDON KENNETH GRIFFITH — NO. 12975 — PROFESSIONAL ENGINEER

1/2/19

STORM DRAIN INFORMATION PLAN

WESTMOUNT - PHASE 3

LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F

A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	22 OF 72

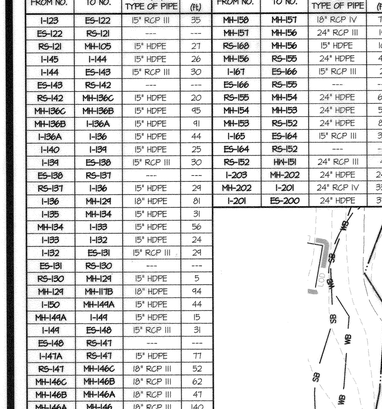
F 17-001

FROM NO.	TO NO.	DIA. (IN.) & TYPE OF PIPE	L (ft)
I-123	ES-122	15" RCP III	35
ES-122	RS-121	---	---
RS-121	MH-105	15" HDPE	27
I-145	I-144	15" HDPE	26
I-144	ES-143	15" RCP III	30
ES-143	RS-142	---	---
RS-142	MH-136C	15" HDPE	20
MH-136C	MH-136B	15" HDPE	95
MH-136B	I-136A	15" HDPE	91
I-136A	I-136	15" HDPE	44
I-140	I-139	15" HDPE	25
I-139	ES-138	15" RCP III	30
ES-138	RS-137	---	---
RS-137	I-136	15" HDPE	29
I-136	MH-129	18" HDPE	81
I-135	MH-134	15" HDPE	31
MH-134	I-133	15" HDPE	56
I-133	I-132	15" HDPE	24
I-132	ES-131	15" RCP III	29
ES-131	RS-130	---	---
RS-130	MH-129	15" HDPE	5
MH-129	MH-117B	18" HDPE	94
I-150	MH-149A	15" HDPE	44
MH-149A	I-149	15" HDPE	15
I-149	ES-148	15" RCP III	31
ES-148	RS-147	---	---
I-147A	RS-147	15" HDPE	77
RS-147	MH-146C	18" RCP III	52
MH-146C	MH-146B	18" RCP III	62
MH-146B	MH-146A	18" RCP III	47
MH-146A	MH-146	18" RCP III	140
MH-146	MH-141	21" HDPE	86
I-194	ES-193	15" RCP III	22
ES-193	RS-192	---	---
RS-192	MH-191	15" HDPE	25
MH-191	MH-190B	24" HDPE	74
MH-190B	MH-190A	24" HDPE	35
MH-190A	ES-190	24" RCP	98
I-116	ES-175	15" RCP III	23
ES-175	RS-174	---	---
RS-174	MH-173	15" HDPE	25
MH-173	MH-172	15" HDPE	113
MH-172	RS-171	15" HDPE	47
I-180	ES-179	15" RCP III	25
ES-179	RS-171	---	---
RS-171	MH-170A	15" HDPE	34
I-186	I-185	15" HDPE	25
I-185	ES-184	15" RCP III	27
ES-184	RS-183	---	---
RS-183	MH-182	15" HDPE	16
MH-182	MH-181	15" HDPE	68
MH-181	MH-170A	15" HDPE	43
MH-170A	MH-170	15" HDPE	40
MH-170	RS-169	15" HDPE	51
I-178	ES-177	15" RCP III	21
ES-177	RS-169	---	---
RS-169	MH-157	15" HDPE	62
I-163	I-162	15" HDPE	24
I-162	ES-161	15" RCP III	27
ES-161	RS-160	---	---
RS-160	MH-154	15" HDPE	20
MH-154	MH-153	15" RCP IV	161
I-184	ES-183	15" RCP III	23
ES-183	RS-182	---	---
RS-182	MH-150	15" HDPE	26

FROM NO.	TO NO.	DIA. (IN.) & TYPE OF PIPE	L (ft)
MH-158	MH-157	18" RCP IV	14
MH-157	MH-156	24" RCP III	19
RS-168	MH-156	15" HDPE	10
MH-156	RS-155	24" HDPE	44
I-167	ES-166	15" RCP III	21
ES-166	RS-155	---	---
RS-155	MH-154	24" HDPE	68
MH-154	MH-153	24" HDPE	52
MH-153	RS-152	24" HDPE	87
I-165	ES-164	15" RCP III	30
ES-164	RS-152	---	---
RS-152	MH-151	24" RCP III	41
I-203	MH-202	24" HDPE	243
MH-202	I-201	24" RCP IV	338
I-201	ES-200	24" HDPE	377

FOR RIP RAP INFORMATION, SEE STORM DRAIN PROFILES, SHEETS 21-33.

FOR MICRO-BIORETENTION UNDERDRAIN PIPE LENGTHS, SEE SHEET 52.



MATCHLINE FOR CONTINUATION SEE SHEET 22

MATCHLINE FOR CONTINUATION SEE SHEET 22

WESTMOUNT PARKWAY

TEMPLETON LANE

CARLETON LANE

DUDLEY LANE

FINDLEY LANE

FOREST CONSERVATION EASEMENT

NON-BUILDABLE BULK PARCEL 'E'

OS LOT 291

OS LOT 292

OS LOT 293

OS LOT 294

OS LOT 275

OS LOT 276

OS LOT 277

OS LOT 268

LOT 199

LOT 200

LOT 201

LOT 202

LOT 203

LOT 204

LOT 205

LOT 243

LOT 244

LOT 245

LOT 246

LOT 247

LOT 248

LOT 249

LOT 250

LOT 251

LOT 252

LOT 253

LOT 254

LOT 261

LOT 262

LOT 263

LOT 264

LOT 265

LOT 266

N 583,650 E 1341500

N 583,100 E 1341500

EX. FIRE ACCESS ROAD TO BE REMOVED

INSET A

NON-BUILDABLE BULK PARCEL 'E'

THIS PLAN IS FOR STORM DRAIN INFORMATION ONLY. FOR GRADING MICRO-BIOS, SEE SHEETS 16 THROUGH 18, AND DETAILS ON SHEETS 56 THROUGH 64.

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.27.19

GLW
PLANNING | ENGINEERING | SURVEYING
3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:			
JRD			
DRAWN BY:			
JRD			
CHECKED BY:			
DEV	2021-03-17	⚠2 ADDED PURPOSE NOTE	HKJ DEV
	DATE	REVISION	BY APP'R

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

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1/2/19

STATE OF MARYLAND — GREGORY KENNETH GUTSCHICK — PROFESSIONAL ENGINEER

STORM DRAIN INFORMATION PLAN

WESTMOUNT - PHASE 3

LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F

A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	23 OF 91

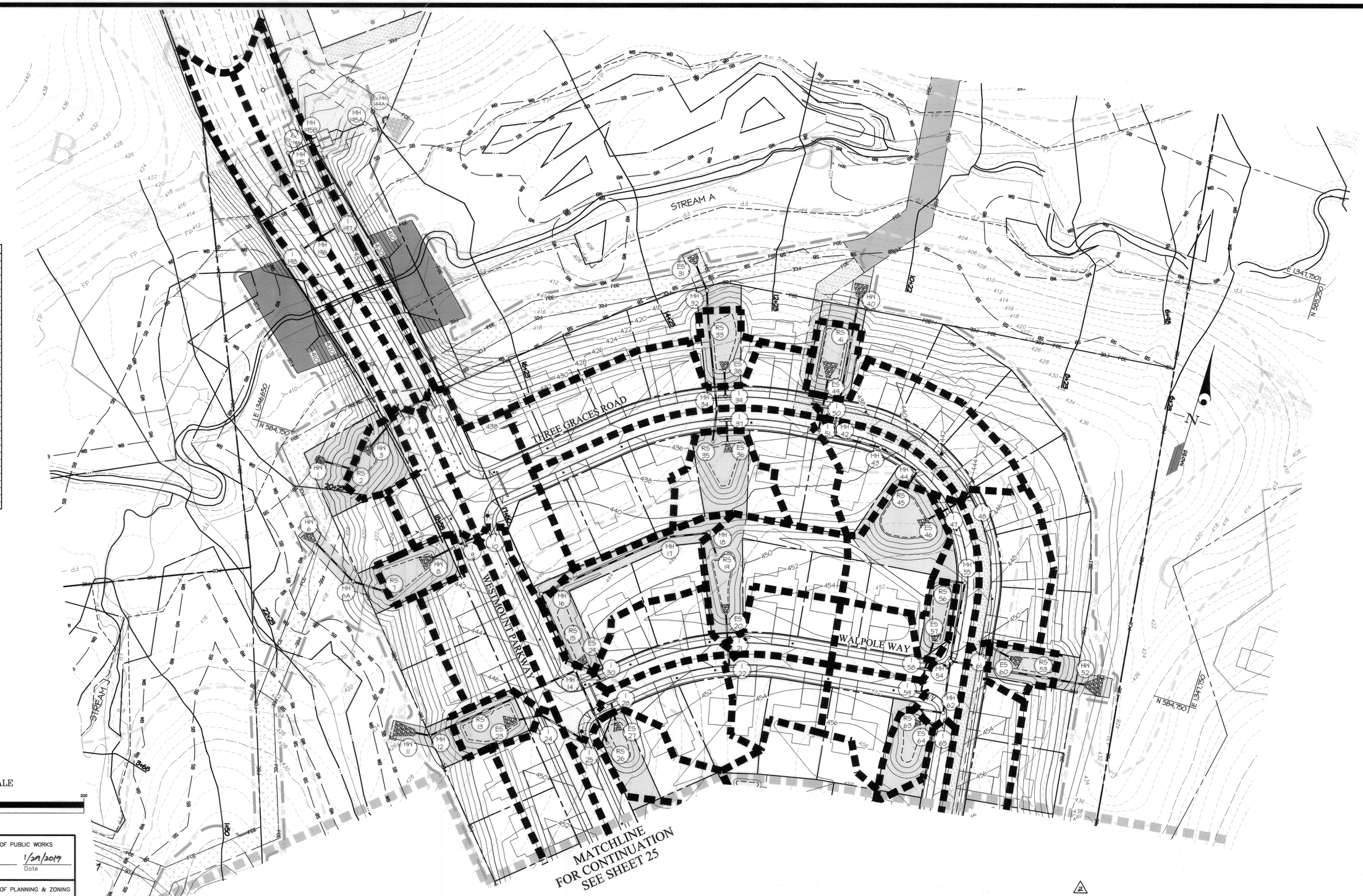
F 17-001

L:\CADD\DRAWINGS\1301\PLANS BY GLW\ROADS-SD (PH3)\2013_21-23_SD INFO.dwg, 3/17/2021 2:54:47 PM, Kathleen B. Parks

FLOODPLAIN ELEVATIONS	
STATION	ELEVATION
STREAM 'A'	
6+23	397.48
6+48	397.95
8+23	398.23
10+22	401.46
12+23	403.94
14+23	406.34
16+23	408.89
17+32	409.89
18+92	410.81
20+23	411.36
22+23	412.78
STREAM 'J'	
1+50	414.41
3+68	420.93

'C' FACTOR COMPUTATIONS			
STRUCTURE	AREA (AC.)	'C'	IMPERVIOUS
I-4	0.18 Ac.	0.61	64%
I-5	0.34 Ac.	0.61	64%
I-9	0.33 Ac.	0.61	64%
I-10	0.23 Ac.	0.61	64%
I-21	0.18 Ac.	0.61	64%
I-22	0.21 Ac.	0.61	64%
I-24	0.40 Ac.	0.61	64%
I-25	0.22 Ac.	0.61	64%
I-28	0.28 Ac.	0.61	64%
I-30	0.23 Ac.	0.61	64%
I-37	0.11 Ac.	0.61	64%
I-39	0.53 Ac.	0.61	64%
I-47	0.20 Ac.	0.61	64%
I-48	0.33 Ac.	0.61	64%
I-50	0.35 Ac.	0.61	64%
I-51	0.22 Ac.	0.61	64%
I-58	0.16 Ac.	0.61	64%
I-59	0.20 Ac.	0.61	64%
I-61	0.51 Ac.	0.61	64%
I-65	0.31 Ac.	0.61	64%
I-197	0.38 Ac.	0.81	60%
I-198	0.41 Ac.	0.51	53%
RS-2	0.09 Ac.	0.34	16%
RS-7	0.10 Ac.	0.34	16%
RS-13	0.11 Ac.	0.34	16%
RS-15	0.35 Ac.	0.34	16%
RS-19	0.33 Ac.	0.34	16%
RS-26	0.21 Ac.	0.34	16%
RS-33	0.11 Ac.	0.34	16%
RS-35	0.22 Ac.	0.34	16%
RS-41	0.10 Ac.	0.34	16%
RS-45	0.28 Ac.	0.34	16%
RS-53	0.08 Ac.	0.34	16%
RS-56	0.01 Ac.	0.34	16%
RS-63	0.09 Ac.	0.34	16%

NOTE: SEE SHEET 21 FOR PROPOSED STORM DRAIN SYSTEM INFORMATION.



GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.27.19

2 THIS PLAN IS FOR DRAINAGE AREA INFORMATION ONLY. FOR GRADING MICRO-BIOS, SEE SHEETS 16 THROUGH 18, AND DETAILS ON SHEETS 56 THROUGH 64.

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PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:				
JRD				
DRAWN BY:				
JRD				
CHECKED BY:				
DEV	2021-03-17	2 ADDED PURPOSE NOTE	HKJ	DEV
	DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

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1/2/19

STORM DRAIN DRAINAGE AREA MAP

WESTMOUNT - PHASE 3

LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F

A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

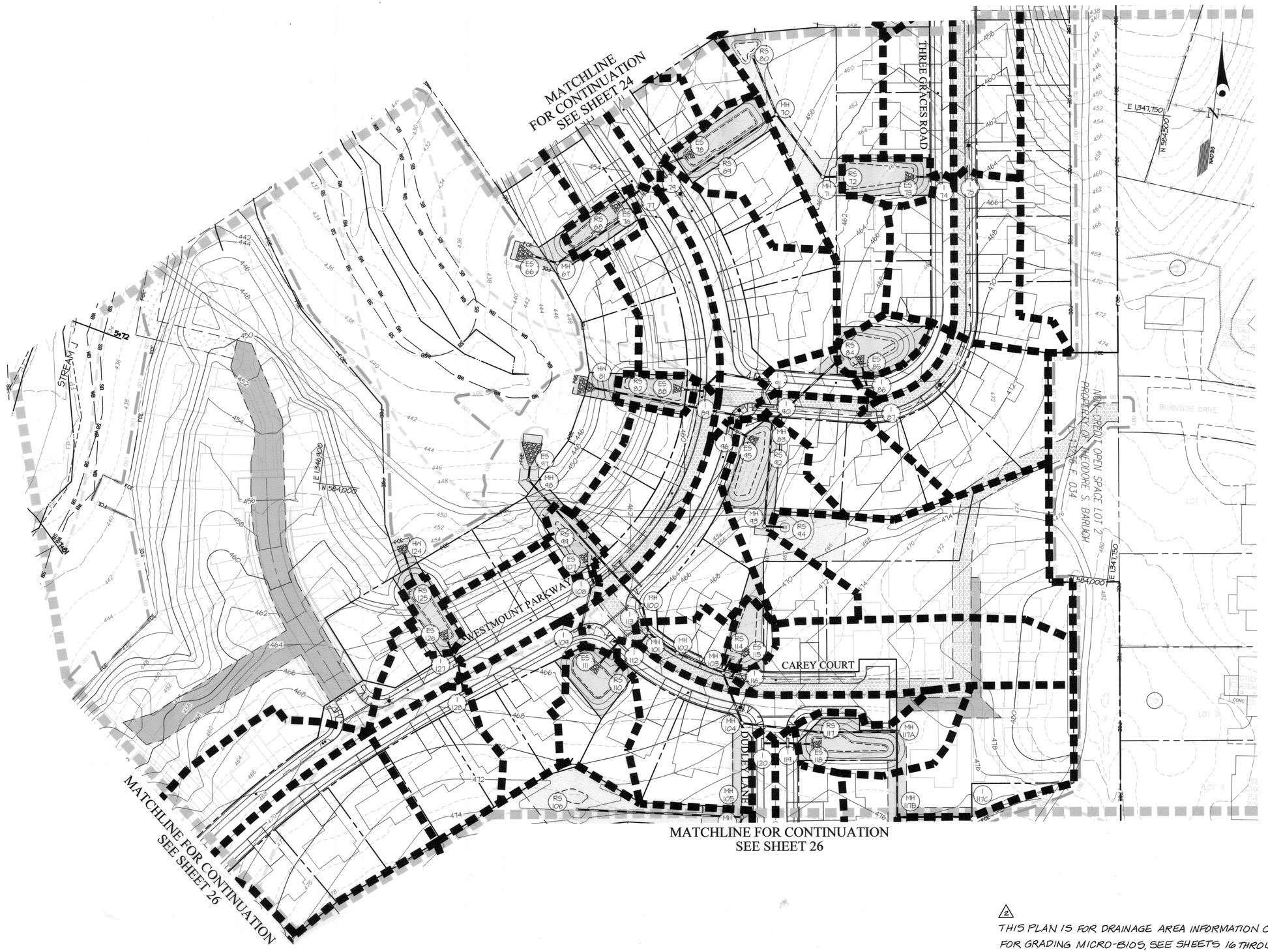
SCALE	ZONING	G. L. W. FILE No.
1"=50'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	24 OF 92

F 17-001

FLOODPLAIN ELEVATIONS	
STATION	ELEVATION
STREAM 'J'	
5+72	429.38
7+81	434.44

'C' FACTOR COMPUTATIONS			
STRUCTURE	AREA (AC.)	'C'	IMPERVIOUS
I-74	0.22 Ac.	0.67	69%
I-75	0.33 Ac.	0.67	69%
I-77	0.35 Ac.	0.67	69%
I-79	0.58 Ac.	0.67	69%
I-86	0.01 Ac.	0.67	69%
I-87	0.51 Ac.	0.67	69%
I-89	0.39 Ac.	0.67	69%
I-90	0.32 Ac.	0.67	69%
I-91	0.09 Ac.	0.67	69%
I-96	0.43 Ac.	0.67	69%
I-108	0.27 Ac.	0.67	69%
I-109	0.30 Ac.	0.67	69%
I-112	0.54 Ac.	0.67	69%
I-113	0.13 Ac.	0.67	69%
I-116	0.31 Ac.	0.67	69%
I-117C	0.58 Ac.	0.34	16%
I-119	0.25 Ac.	0.67	69%
I-120	0.10 Ac.	0.67	69%
I-127	0.12 Ac.	0.67	69%
I-128	0.33 Ac.	0.67	69%
RS-68	0.08 Ac.	0.34	16%
RS-69	0.31 Ac.	0.34	16%
RS-72	0.10 Ac.	0.34	16%
RS-80	0.84 Ac.	0.34	16%
RS-82	0.07 Ac.	0.34	16%
RS-84	0.10 Ac.	0.34	16%
RS-92	0.40 Ac.	0.34	16%
RS-94	0.75 Ac.	0.34	16%
RS-99	0.08 Ac.	0.34	16%
RS-106	0.68 Ac.	0.34	16%
RS-110	0.24 Ac.	0.34	16%
RS-114	0.07 Ac.	0.34	16%
RS-117	0.25 Ac.	0.34	16%
RS-125	0.07 Ac.	0.34	16%

NOTE: SEE SHEET 22 FOR PROPOSED STORM DRAIN SYSTEM INFORMATION.



GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6.27.19

Chief, Development Engineering Division — Date 6.24.19

⚠2 THIS PLAN IS FOR DRAINAGE AREA INFORMATION ONLY. FOR GRADING MICRO-BIOS, SEE SHEETS 16 THROUGH 18, AND DETAILS ON SHEETS 56 THROUGH 64.

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DESIGNED BY:	JRD		
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STATE OF MARYLAND — CARLTON KENNETH GIPSON — PROFESSIONAL ENGINEER

STORM DRAIN DRAINAGE AREA MAP

WESTMOUNT - PHASE 3

LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F

A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	25 OF 92

F 17-001

L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PH3)\13013_24-26_SD DAM.dwg, PLOTTED: 12/31/2018 11:34 AM, LAST SAVED: 12/27/2018 4:12 PM, PLOTTED BY: Jennifer R. Dicks

MATCHLINE FOR CONTINUATION
SEE SHEET 25

MATCHLINE FOR CONTINUATION SEE SHEET 25

STREAM J

WESTMOUNT PARKWAY

CARLETON LANE

DUDLEY LANE

TEMPLETON LANE

FINDLEY LANE

N 583,650
E 1340,100

N 583,200
E 1341,500

N 583,200
E 1341,500

FLOODPLAIN ELEVATIONS	
STATION	ELEVATION
STREAM 'J'	
10+00	441.79

'C' FACTOR COMPUTATIONS			
STRUCTURE	AREA (AC.)	'C'	IMPERVIOUS
I-123	0.32 Ac.	0.61	64%
I-132	0.15 Ac.	0.61	64%
I-133	0.14 Ac.	0.61	64%
I-135	0.65 Ac.	0.34	16%
I-136	0.08 Ac.	0.40	26%
I-136A	0.22 Ac.	0.36	19%
I-139	0.23 Ac.	0.61	64%
I-140	0.20 Ac.	0.34	16%
I-144	0.31 Ac.	0.61	64%
I-145	0.21 Ac.	0.34	16%
I-147A	0.84 Ac.	0.36	19%
I-148	0.34 Ac.	0.61	64%
I-150	0.23 Ac.	0.61	64%
I-162	0.14 Ac.	0.61	64%
I-163	0.50 Ac.	0.61	64%
I-165	0.90 Ac.	0.61	64%
I-167	0.80 Ac.	0.61	64%
I-176	0.38 Ac.	0.61	64%
I-178	0.14 Ac.	0.61	64%
I-180	0.50 Ac.	0.61	64%
I-185	0.18 Ac.	0.61	64%
I-186	0.12 Ac.	0.61	64%
I-188	0.46 Ac.	0.61	64%
I-194	0.28 Ac.	0.61	64%
I-201	3.11 Ac.	0.38	23%
I-203	7.21 Ac.	0.38	23%
RS-121	0.11 Ac.	0.34	16%
RS-130	0.08 Ac.	0.34	16%
RS-131	0.01 Ac.	0.34	16%
RS-142	0.09 Ac.	0.34	16%
RS-147	0.08 Ac.	0.34	16%
RS-152	0.11 Ac.	0.34	16%
RS-155	0.24 Ac.	0.34	16%
RS-160	0.23 Ac.	0.34	16%
RS-168	0.31 Ac.	0.34	16%
RS-169	0.11 Ac.	0.34	16%
RS-171	0.36 Ac.	0.34	16%
RS-174	0.24 Ac.	0.34	16%
RS-188	0.11 Ac.	0.34	16%
RS-187	0.30 Ac.	0.34	16%
RS-192	0.41 Ac.	0.34	16%

NOTE: SEE SHEET 23 FOR PROPOSED STORM DRAIN SYSTEM INFORMATION.

SEE INSET 'A'

INSET 'A'
SCALE: 1"=100'

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 6.27.19
Chief, Development Engineering Division — Date 6.24.19

2 THIS PLAN IS FOR DRAINAGE AREA INFORMATION ONLY. FOR GRADING MICRO-BIOS, SEE SHEETS 16 THROUGH 18, AND DETAILS ON SHEETS 56 THROUGH 64.

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DESIGNED BY:	DATE	REVISION	BY	APP'R.
JRD				
DRAWN BY: JRD				
CHECKED BY: DEV	2021-03-17	2 ADDED PURPOSE NOTE	HJ	DEV

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975 EXPIRATION DATE: MAY 26, 2020
1/2/19

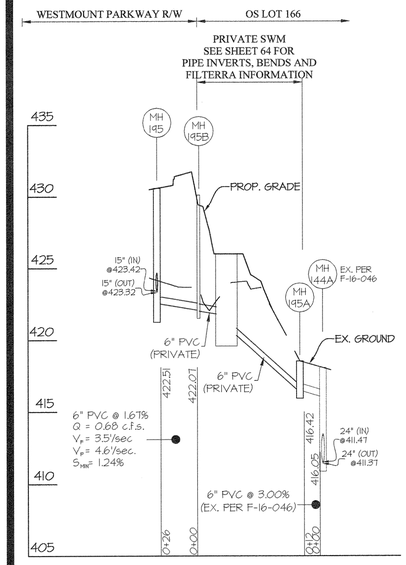
STORM DRAIN DRAINAGE AREA MAP

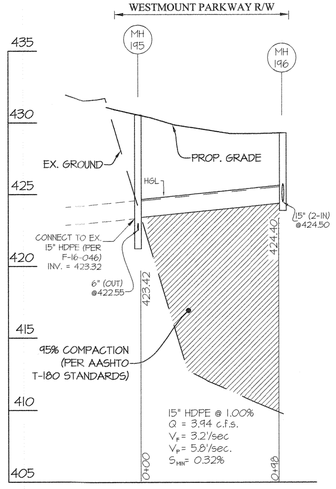
WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

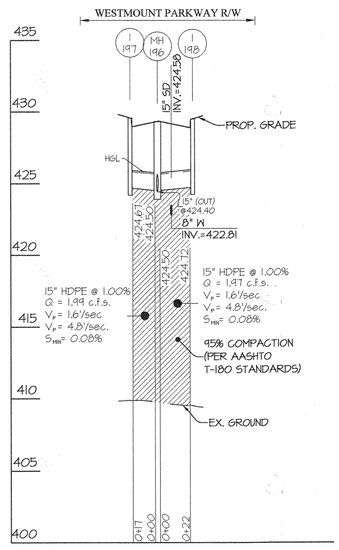
ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

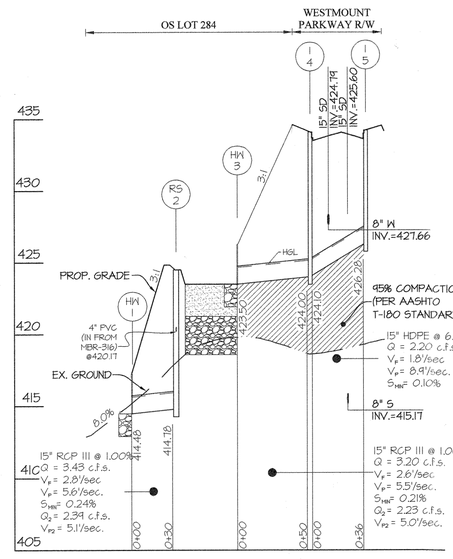
SCALE	ZONING	G. L. W. FILE No.
1"=50'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	26 OF 92

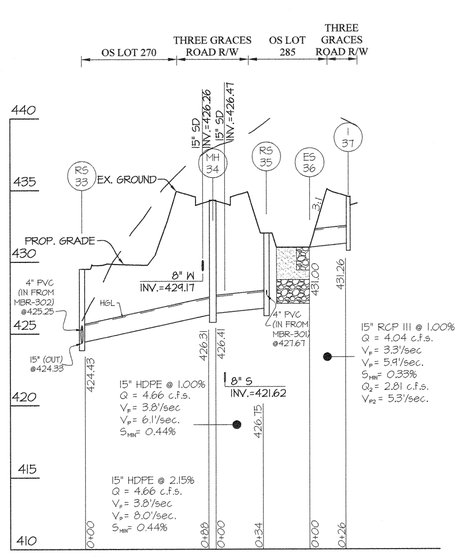
F 17-001

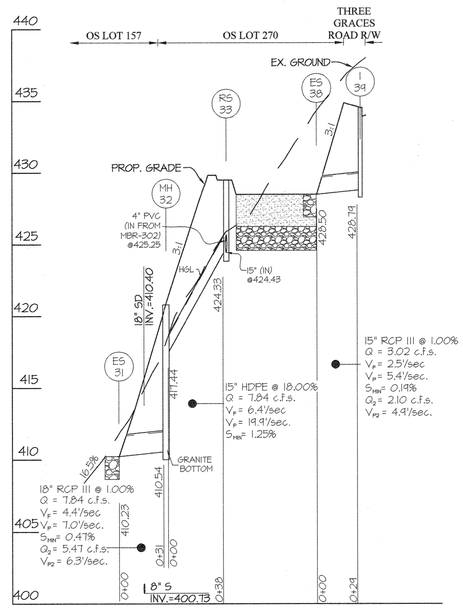


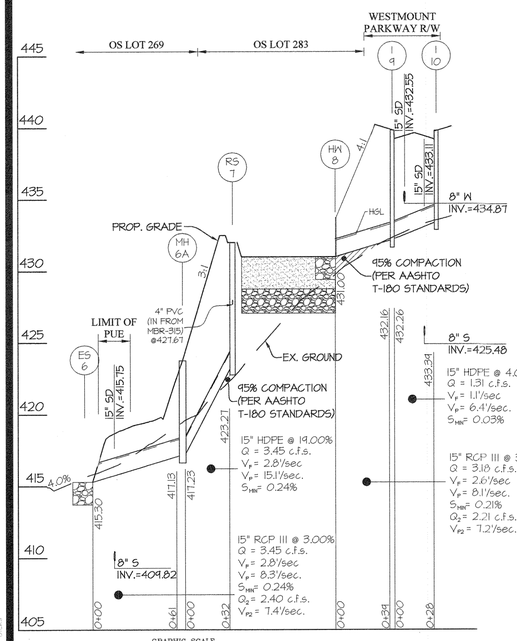


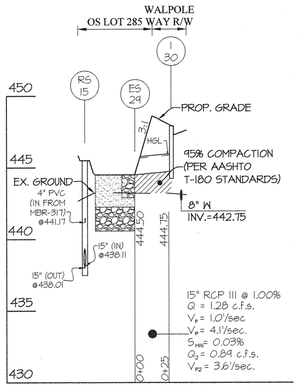


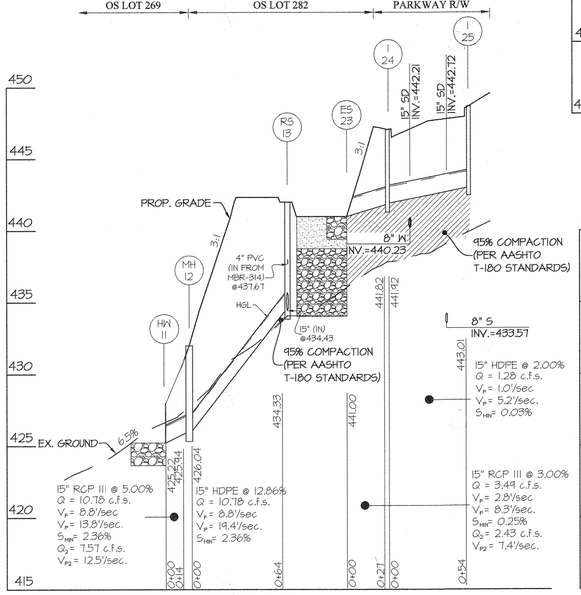


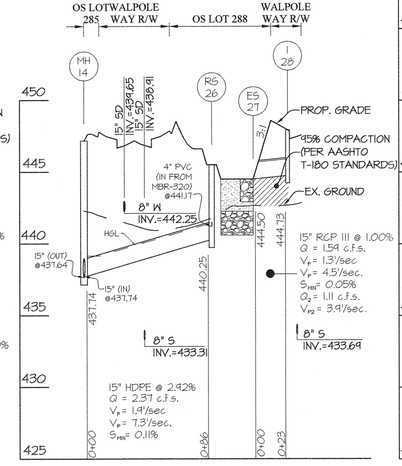


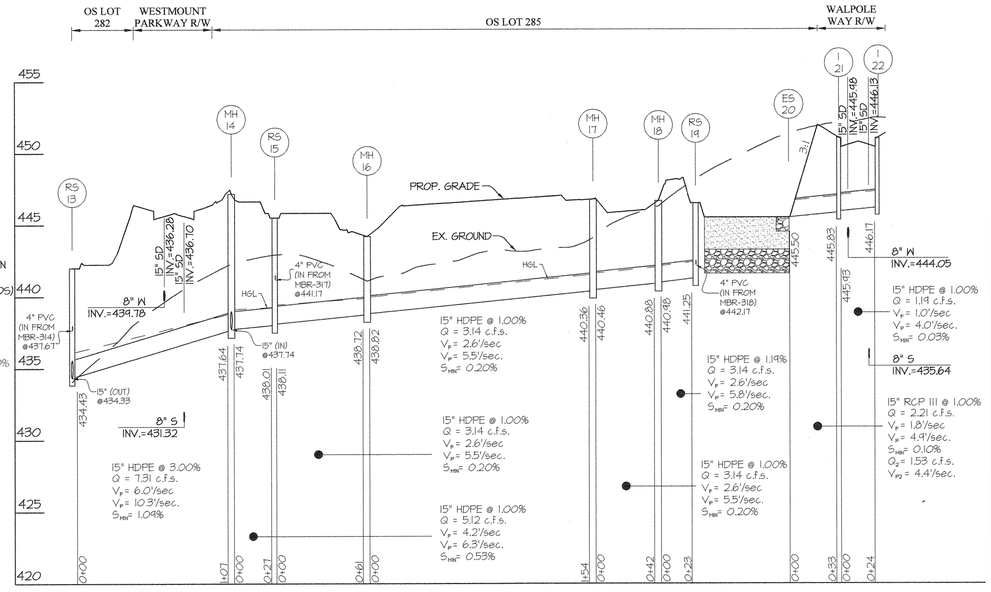












GRAPHIC SCALE
50 0 25 50 100
1 inch = 50 ft.

NOTE:
SEE SHEETS 56-64 FOR MICRO-BIORETENTION FILTER MEDIA DEPTHS PER FACILITY.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6.27.19

Chief, Development Engineering Division — Date 6.24.19

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DESIGNED BY:	DATE	REVISION	BY	APP'R.
JRD				
DRAWN BY: JRD				
CHECKED BY: DEV				

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975
EXPIRATION DATE: MAY 26, 2020

STATE OF MARYLAND — CHARLES KENNETH GUTSCHICK — NO. 12975 — PROFESSIONAL ENGINEER

1/2/19

STORM DRAIN PROFILES

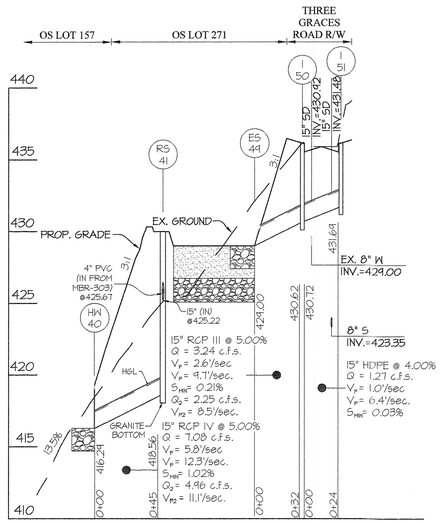
WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

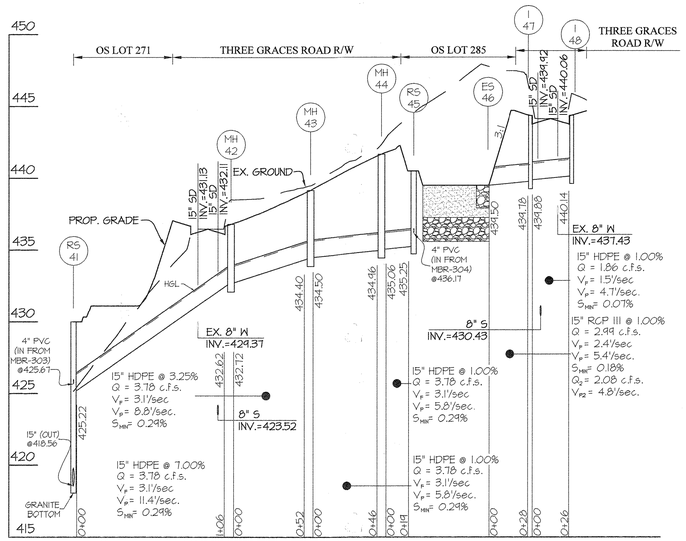
ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

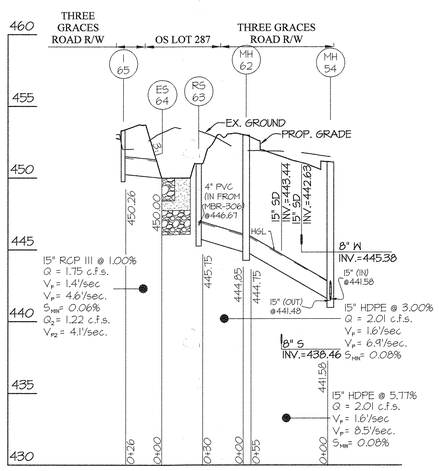
SCALE	ZONING	G. L. W. FILE No.
1"=50' (H) 1"=5' (V)	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	27 OF 92

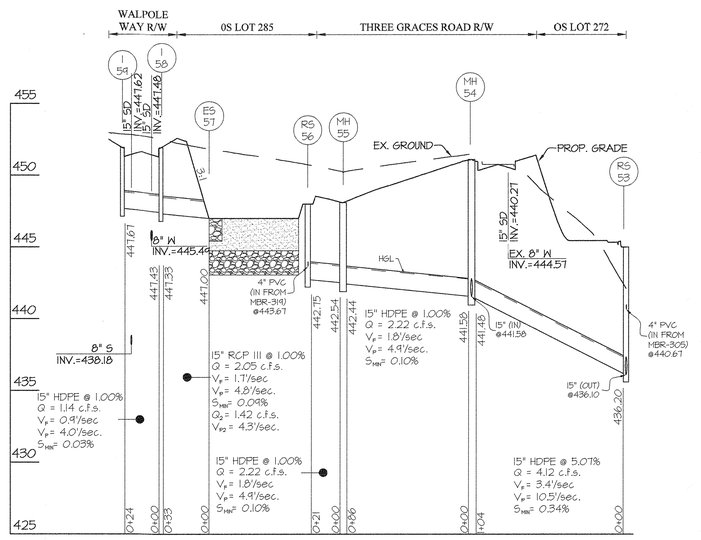
F 17-001

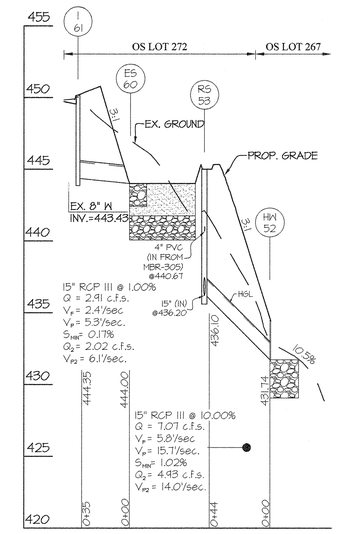
L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PH3)\13013_27-33-SD PROFILES.dwg, 1/2/2019 2:19:16 PM, EASTERN STANDARD TIME, CAMILLA CARROLL, 1:1

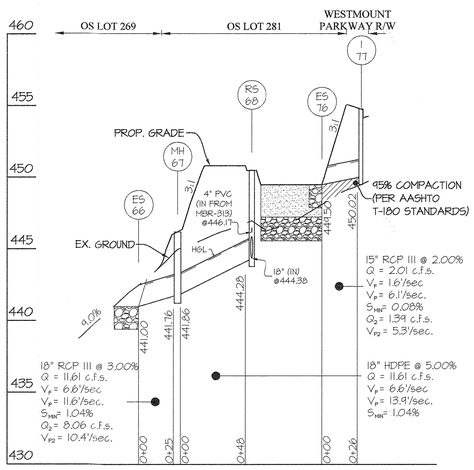


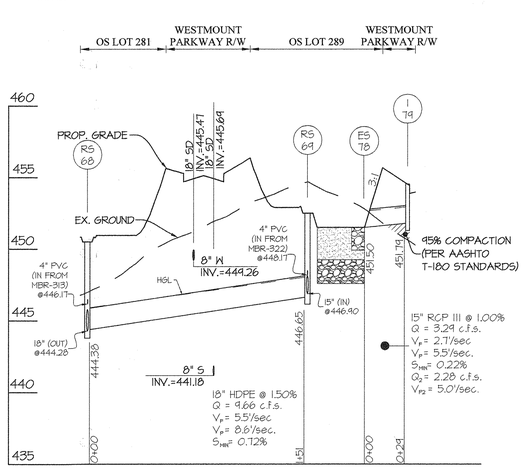


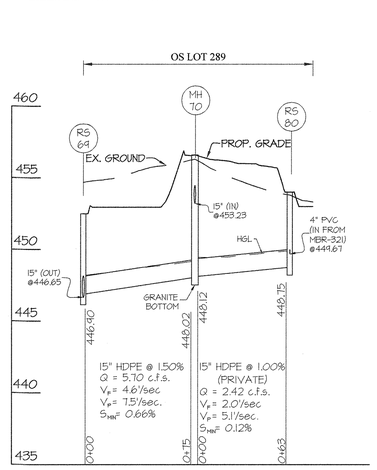


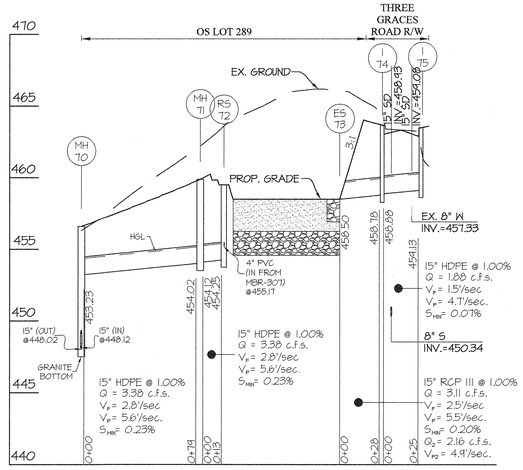












NOTE:
SEE SHEETS 56-64 FOR MICRO-BIORETENTION FILTER MEDIA DEPTHS PER FACILITY.

GRAPHIC SCALE
50 0 25 50 100
1 inch = 50 ft.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.24.19

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DESIGNED BY:	DATE	REVISION	BY	APP'R.
JRD				
DRAWN BY: JRD				
CHECKED BY: DEV				

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

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EXPIRATION DATE: MAY 26, 2020
12/19

STORM DRAIN PROFILES

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
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ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

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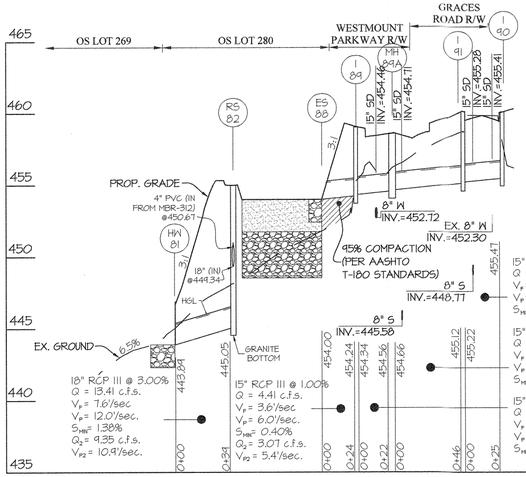
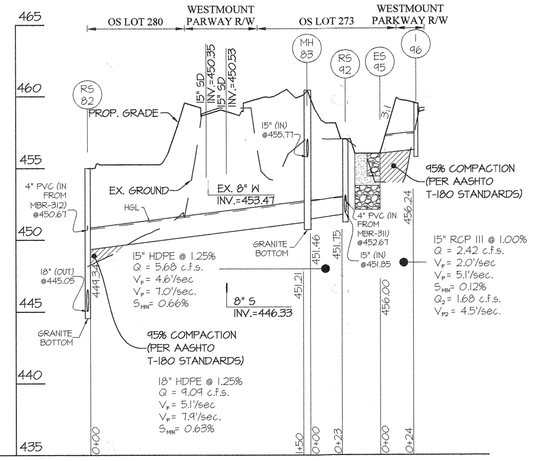
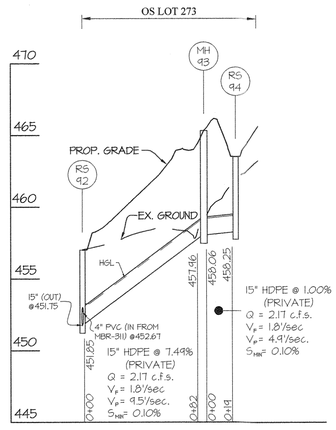
1"=50' (H) 1"=5' (V)	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	28 OF 92

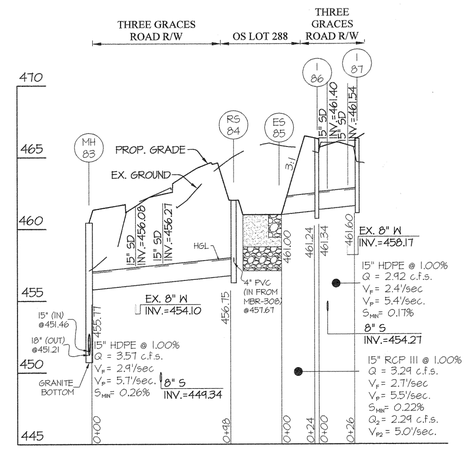
L:\CADD\DRAWINGS\13013\PLANS BY: GLW\ROADS-SD (PH3)\13013_27-33-SD PROFILES.dwg, 12/20/2018 10:19:19 AM, JRD

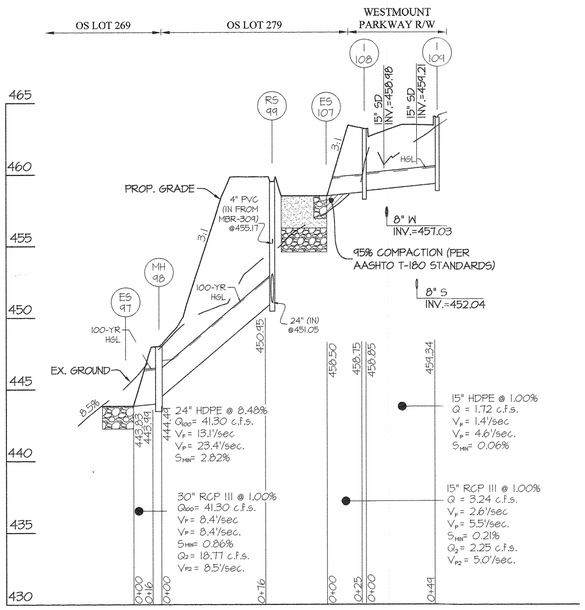
F 17-001

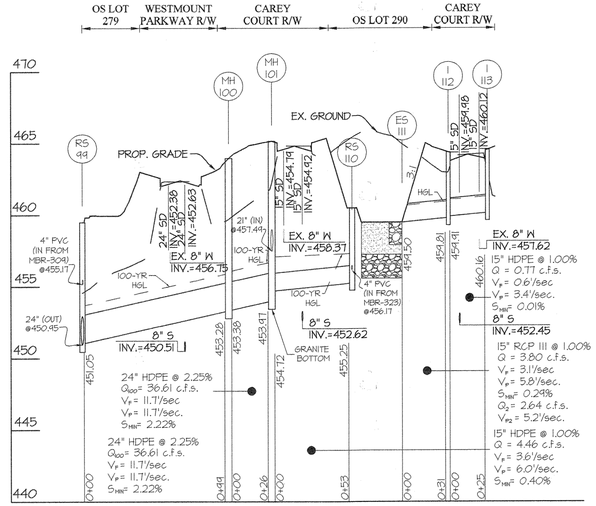


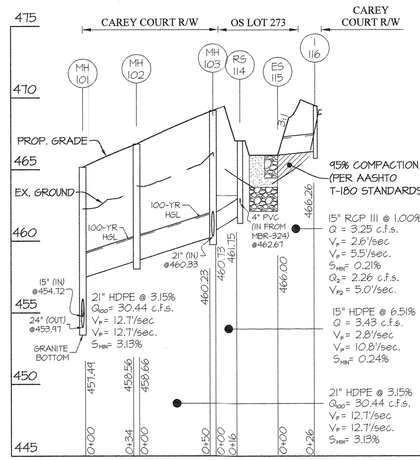


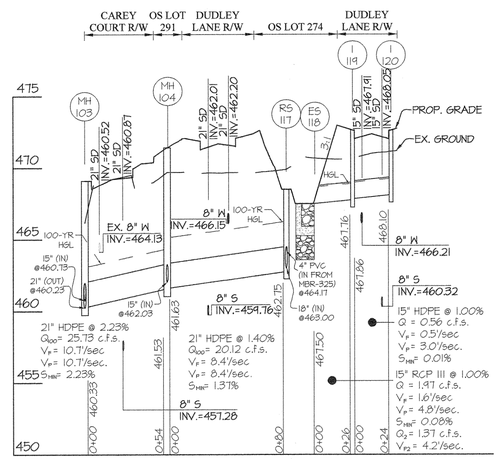


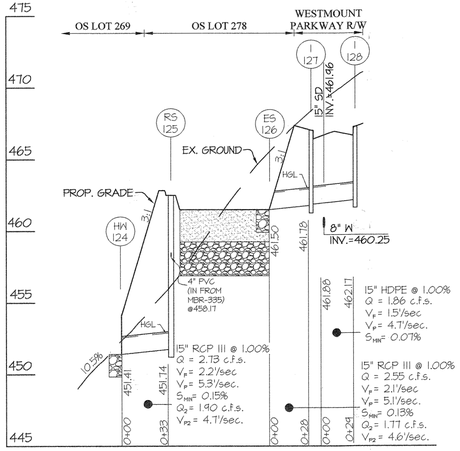


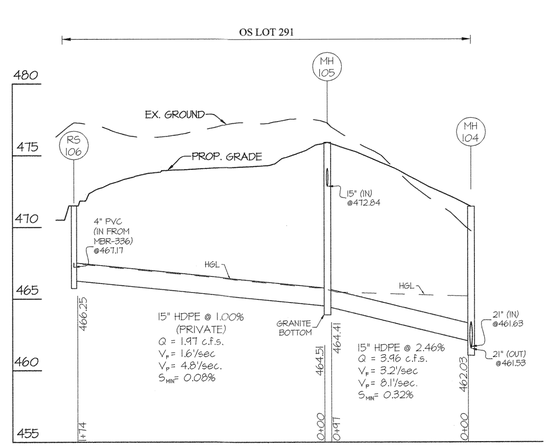


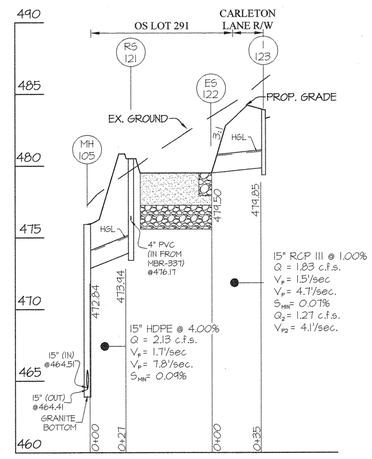












GRAPHIC SCALE
50 0 25 50 100
1 inch = 50 ft.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 6-27-19
Chief, Development Engineering Division — Date 6.24.19

NOTE:
SEE SHEETS 56-64 FOR MICRO-BIORETENTION FILTER MEDIA DEPTHS PER FACILITY.

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DESIGNED BY: JRD
DRAWN BY: JRD
CHECKED BY: DEV

DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
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STATE OF MARYLAND — CHRISTOPHER KENNETH GUTSHICK — PROFESSIONAL ENGINEER
12/19

STORM DRAIN PROFILES

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

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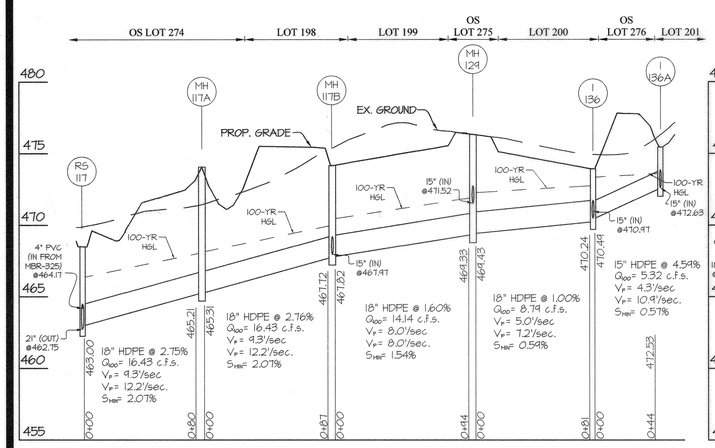
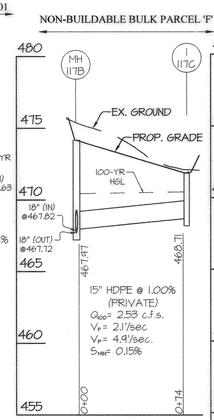
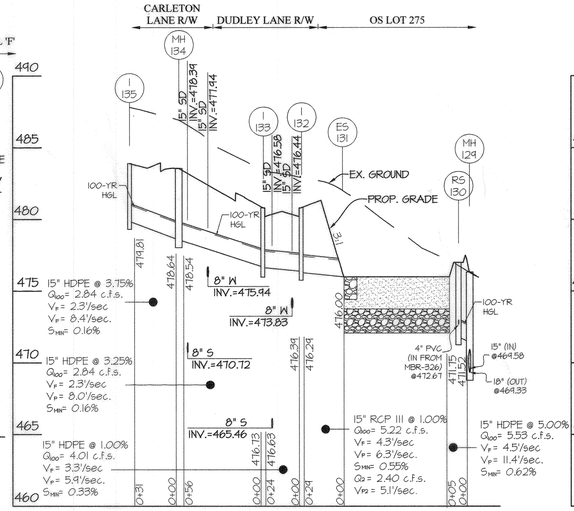
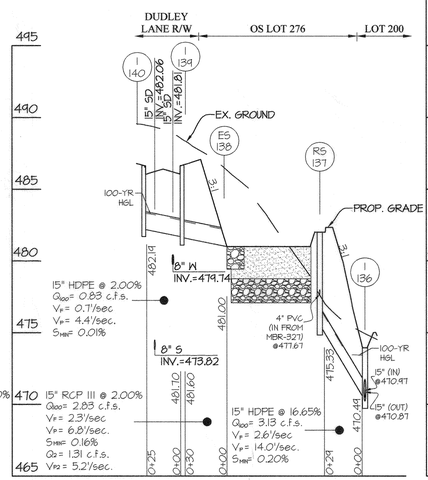
1"=50' (H) 1"=5' (V)	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	29 OF 92

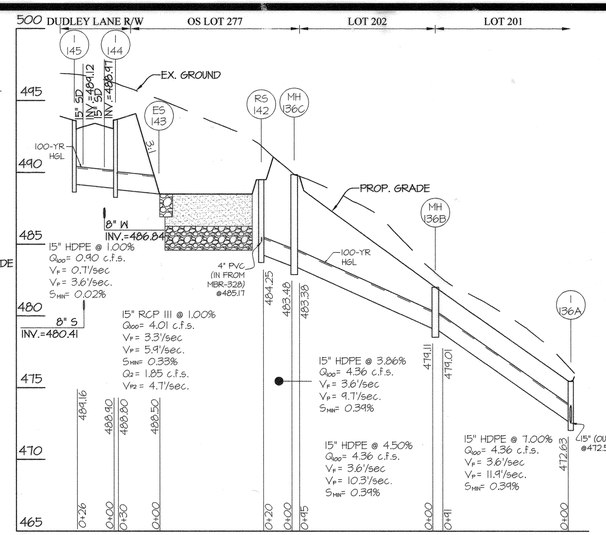
F 17-001

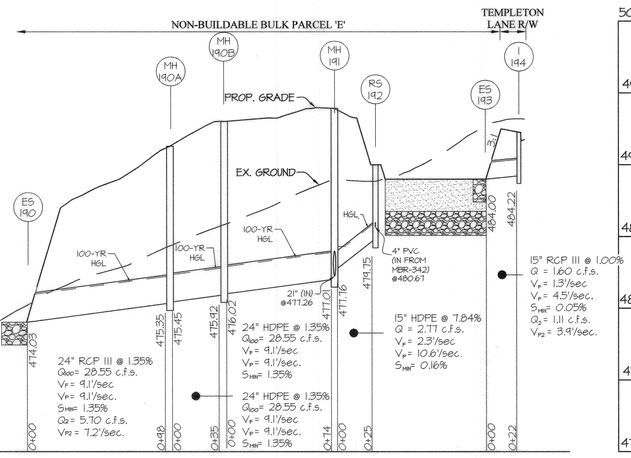


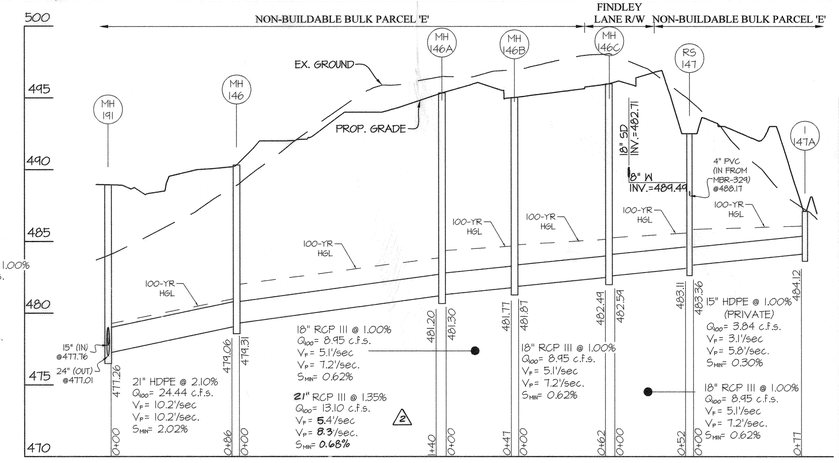


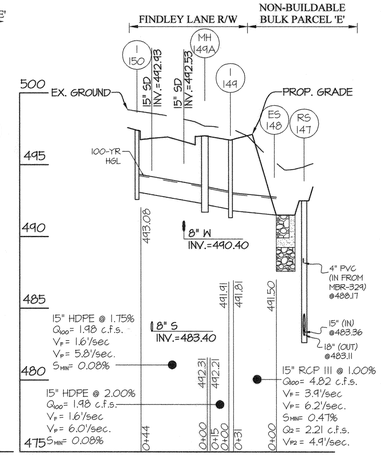


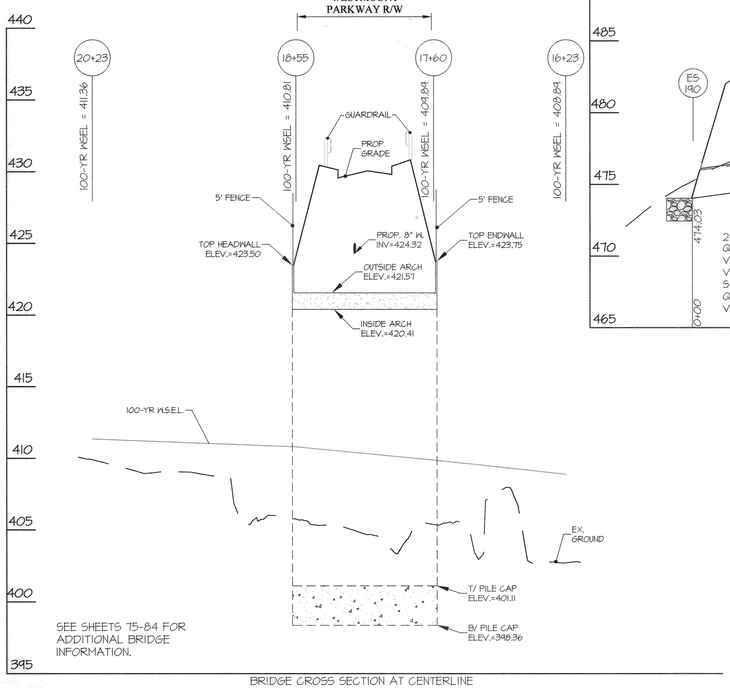


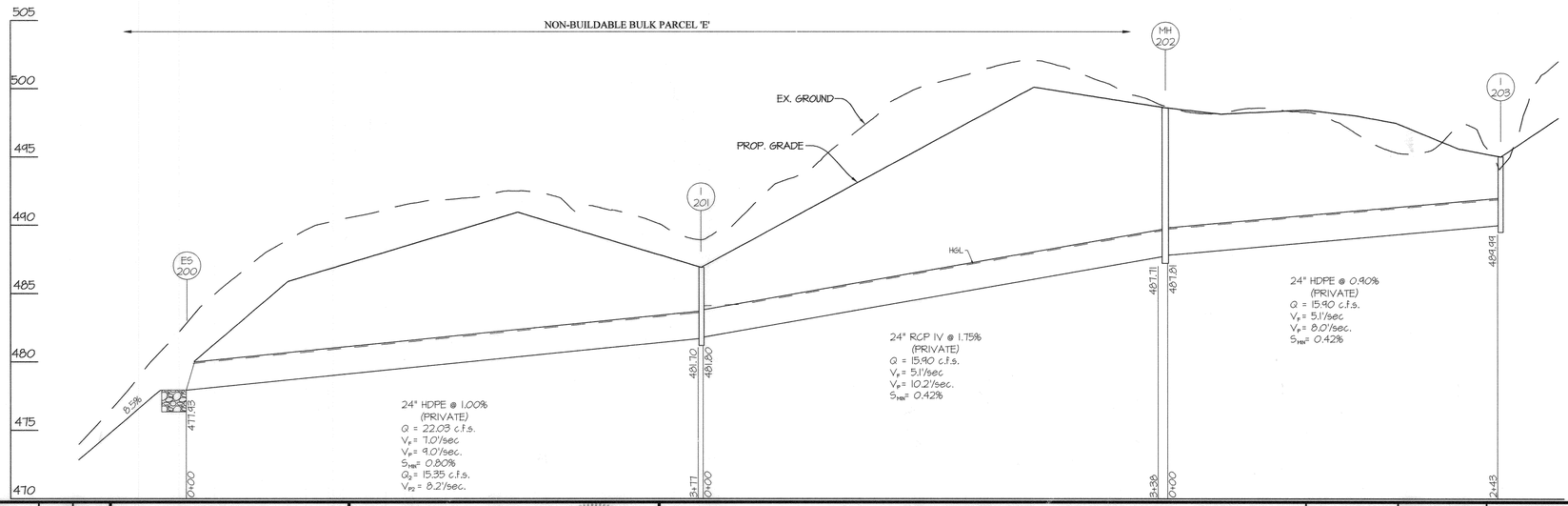












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GRAPHIC SCALE
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DESIGNED BY:			
JRD			
DRAWN BY:			
JRD			
CHECKED BY:			
DEV	2021-05-17	2 REVISE STORM DRAIN TO ACCOMODATE FLOWS FROM F 21/032	HCJ / DEV
	DATE	REVISION	BY / APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975 EXPIRATION DATE: MAY 26, 2020
12/19

STATE OF MARYLAND — CHRISTOPHER KENNETH GUTSCHICK — No. 12975 — PROFESSIONAL ENGINEER

STORM DRAIN PROFILES

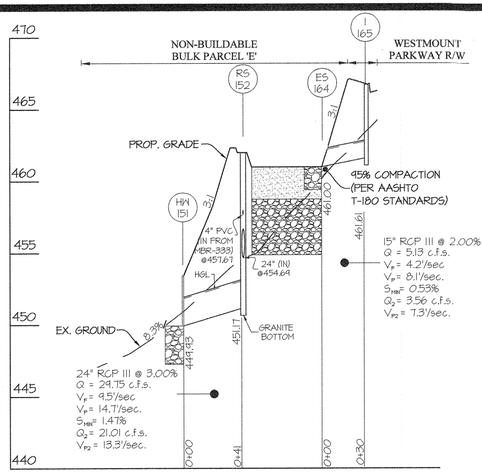
WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

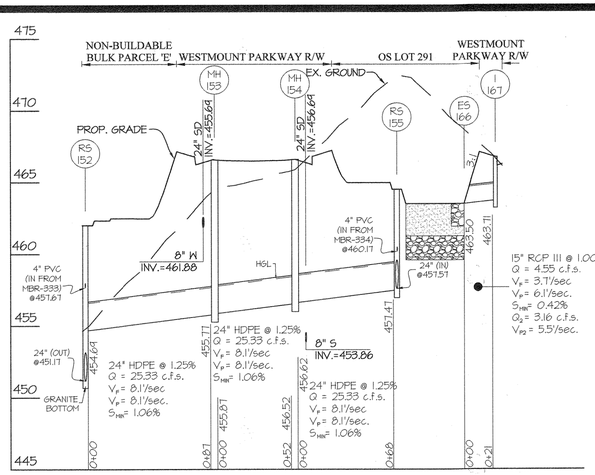
ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

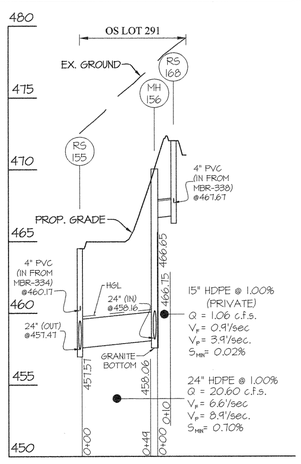
SCALE	ZONING	G. L. W. FILE No.
1"=50' (H) 1"=5' (V)	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	30 OF 72

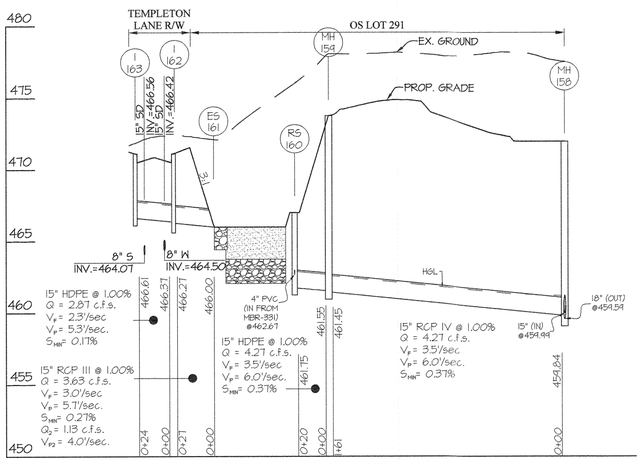
F 17-001

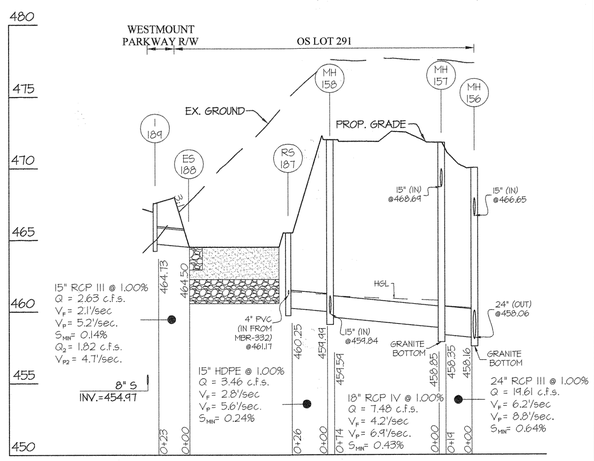
L:\CADD\DRAWINGS\13013\PLANS BY GLW\PD0505-50 (PHASE)\13013_27-33-50 PROFILES.dwg, 6/24/2019 2:40:13 PM, JOHN DEV, 1:1, PLOTTED BY: CHARLES Hancocks

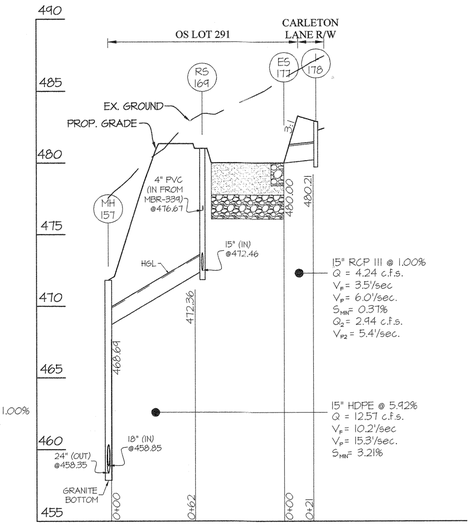


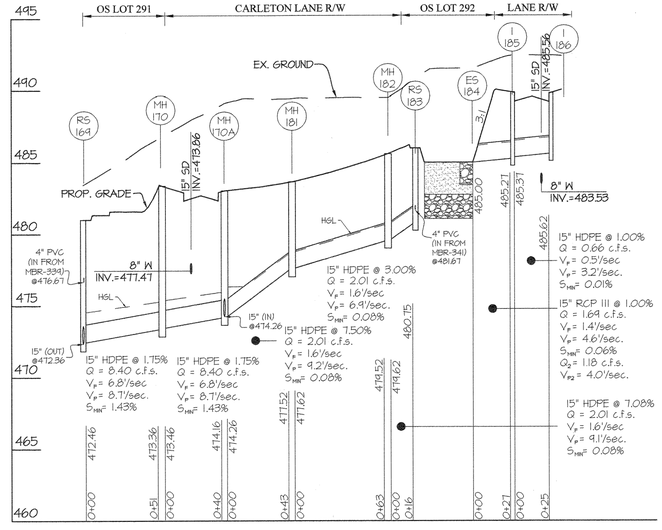


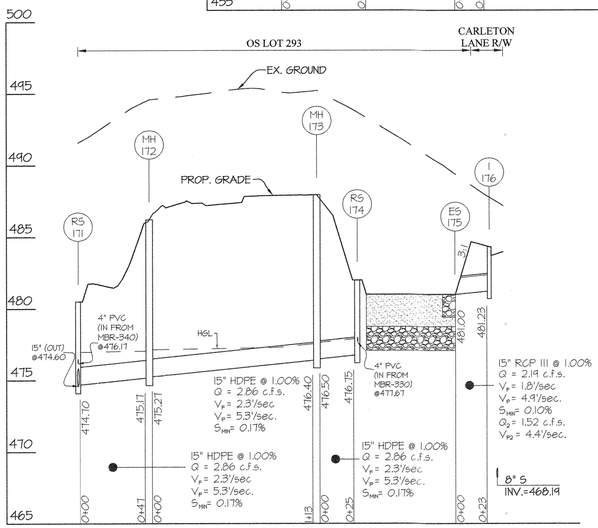


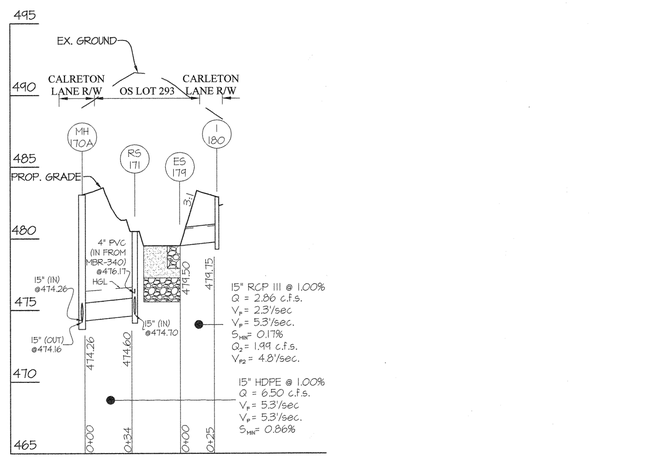












NOTE:
SEE SHEETS 56-64 FOR MICRO-BIORETENTION FILTER MEDIA DEPTHS PER FACILITY.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.24.19

GRAPHIC SCALE
50 0 25 50 100
1 inch = 50 ft.

GLW
PLANNING | ENGINEERING | SURVEYING
3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:				
JRD				
DRAWN BY:				
JRD				
CHECKED BY:				
DEV				
DATE	REVISION		BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975
EXPIRATION DATE: MAY 26, 2020
1/2/19
STATE OF MARYLAND — KENNETH GUTSCHICK — 12975 — PROFESSIONAL ENGINEER

STORM DRAIN PROFILES

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50' (H) 1"=5' (V)	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	31 OF 92

F 17-001

L:\CAD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PH3)\13013_27-33-SD PROFILES.dwg, 6/26/2019 2:47:56 PM, Adobe PDF

PIPE SCHEDULE			
SIZE	TYPE	QUANTITY (L.F.)	REMARKS
6"	PVC	26	PUBLIC
15"	HDPE	3,499	PUBLIC
15"	HDPE	499	PRIVATE
15"	RCCP CL. III	1,253	PUBLIC
15"	RCCP CL. IV	206	PUBLIC
18"	HDPE	691	PUBLIC
18"	RCCP CL. III	⚠2 256	PUBLIC
18"	RCCP CL. IV	74	PUBLIC
21"	HDPE	304	PUBLIC
24"	HDPE	566	PUBLIC
24"	HDPE	620	PRIVATE
24"	RCCP CL. III	158	PUBLIC
24"	RCCP CL. IV	338	PRIVATE
30"	RCCP CL. III	16	PUBLIC
⚠2 21"	RCCP CL III	140	PUBLIC

THIS PIPE SCHEDULE IS FOR THE STORM DRAIN ON SHEETS 27-33 ONLY.

FOR THE PIPE SCHEDULE FOR UNDERDRAINS WITHIN MICRO-BIORETENTION FACILITIES OR THE PRIVATE 6" PVC TO AND FROM FILTERRA UNITS, SEE SHEET 56.

STRUCTURE SCHEDULE													
NO	TYPE	WIDTH (INSIDE)	TOP ELEVATION PROPOSED UPPER	TOP ELEVATION PROPOSED LOWER	TOP ELEVATION AS-BUILT UPPER	TOP ELEVATION AS-BUILT LOWER	INVERT PROPOSED UPPER	INVERT PROPOSED LOWER	INVERT AS-BUILT UPPER	INVERT AS-BUILT LOWER	STD. DETAIL	LOCATIONS ⟨1⟩	PRIVATE/ PUBLIC
I-4	A-10 INLET	2'-6"	434.27	433.84			424.10	424.00			HO. CO. D-4.03	N 584,807 E 1,346,800	PUBLIC
I-5	COG-15 INLET	2'-6"	434.66	434.14			---	426.28			SHA MD 374.62	N 584,828 E 1,346,830	PUBLIC
I-9	A-10 INLET	2'-6"	440.00	439.64			432.26	432.16			HO. CO. D-4.03	N 584,688 E 1,346,913	PUBLIC
I-10	A-10 INLET	2'-6"	440.00	439.64			---	433.39			HO. CO. D-4.03	N 584,707 E 1,346,934	PUBLIC
I-21	A-10 INLET	2'-6"	451.10	450.88			445.93	445.83			HO. CO. D-4.03	N 584,665 E 1,347,230	PUBLIC
I-22	A-10 INLET	2'-6"	451.11	450.87			---	446.17			HO. CO. D-4.03	N 584,642 E 1,347,239	PUBLIC
I-24	COG-15 INLET	2'-6"	447.48	446.94			441.92	441.82			SHA MD 374.62	N 584,522 E 1,347,051	PUBLIC
I-25	A-10 INLET	2'-6"	448.81	448.45			---	443.01			HO. CO. D-4.03	N 584,510 E 1,347,105	PUBLIC
I-28	A-10 INLET	2'-6"	447.99	447.76			---	444.73			HO. CO. D-4.03	N 584,564 E 1,347,122	PUBLIC
I-30	A-10 INLET	2'-6"	447.99	447.76			---	444.75			HO. CO. D-4.03	N 584,583 E 1,347,106	PUBLIC
I-37	COS-15 INLET	2'-6"	434.52	434.52			---	431.26			SHA MD 374.63	N 584,907 E 1,347,154	PUBLIC
I-39	COS-15 INLET	2'-6"	434.52	434.52			---	428.79			SHA MD 374.63	N 584,930 E 1,347,146	PUBLIC
I-47	A-10 INLET	2'-6"	444.60	444.08			439.88	439.78			HO. CO. D-4.03	N 584,885 E 1,347,425	PUBLIC
I-48	COG-15 INLET	2'-6"	444.94	444.26			---	440.14			SHA MD 374.62	N 584,900 E 1,347,447	PUBLIC
I-50	A-10 INLET	2'-6"	436.30	435.98			430.72	430.62			HO. CO. D-4.03	N 584,951 E 1,347,255	PUBLIC
I-51	A-10 INLET	2'-6"	436.30	435.98			---	431.69			HO. CO. D-4.03	N 584,927 E 1,347,251	PUBLIC
I-58	A-10 INLET	2'-6"	451.95	451.84			447.43	447.33			HO. CO. D-4.03	N 584,701 E 1,347,451	PUBLIC
I-59	A-10 INLET	2'-6"	451.95	451.84			---	447.67			HO. CO. D-4.03	N 584,678 E 1,347,455	PUBLIC
I-61	COG-15 INLET	2'-6"	450.59	450.07			---	444.35			SHA MD 374.62	N 584,744 E 1,347,504	PUBLIC
I-65	A-10 INLET	2'-6"	453.48	453.11			---	450.26			HO. CO. D-4.03	N 584,651 E 1,347,490	PUBLIC
I-74	A-10 INLET	2'-6"	463.88	463.42			458.88	458.78			HO. CO. D-4.03	N 584,405 E 1,347,523	PUBLIC
I-75	A-10 INLET	2'-6"	463.70	463.25			---	459.13			HO. CO. D-4.03	N 584,412 E 1,347,546	PUBLIC
I-77	A-10 INLET	2'-6"	454.96	454.60			---	450.02			HO. CO. D-4.03	N 584,354 E 1,347,204	PUBLIC
I-79	COG-15 INLET	2'-6"	454.96	454.42			---	451.79			SHA MD 374.62	N 584,374 E 1,347,223	PUBLIC
I-86	A-10 INLET	2'-6"	466.48	466.04			461.34	461.24			HO. CO. D-4.03	N 584,712 E 1,347,464	PUBLIC
I-87	A-15 INLET	2'-6"	466.39	465.87			---	461.60			PG SD-10.1	N 584,146 E 1,347,469	PUBLIC
I-89	A-10 INLET	2'-6"	459.07	458.96			454.34	454.24			HO. CO. D-4.03	N 584,148 E 1,347,298	PUBLIC
I-90	COG-15 INLET	2'-6"	460.77	459.94			---	455.47			SHA MD 374.62	N 584,142 E 1,347,365	PUBLIC
I-91	A-10 INLET	2'-6"	460.37	459.84			455.22	455.12			HO. CO. D-4.03	N 584,166 E 1,347,359	PUBLIC
I-96	A-10 INLET	2'-6"	459.41	459.31			---	456.24			HO. CO. D-4.03	N 584,113 E 1,347,326	PUBLIC
I-108	A-10 INLET	2'-6"	463.27	463.02			458.85	458.75			HO. CO. D-4.03	N 583,927 E 1,347,206	PUBLIC
I-109	A-10 INLET	2'-6"	464.20	463.96			---	459.34			HO. CO. D-4.03	N 583,874 E 1,347,191	PUBLIC
I-112	COG-15 INLET	2'-6"	464.90	464.21			459.91	459.81			SHA MD 374.62	N 583,867 E 1,347,243	PUBLIC
I-113	A-10 INLET	2'-6"	464.70	464.18			---	460.16			HO. CO. D-4.03	N 583,887 E 1,347,256	PUBLIC
I-116	COG-15 INLET	2'-6"	470.13	469.33			---	466.26			SHA MD 374.62	N 583,845 E 1,347,368	PUBLIC
I-117C	'S' INLET	2'-7"	471.91	---			---	468.71			HO. CO. D-4.24	N 583,730 E 1,347,633	PRIVATE
I-119	A-10 INLET	2'-6"	472.82	472.39			467.86	467.76			HO. CO. D-4.03	N 583,784 E 1,347,429	PUBLIC
I-120	A-10 INLET	2'-6"	472.82	472.39			---	468.10			HO. CO. D-4.03	N 583,781 E 1,347,405	PUBLIC
I-123	A-10 INLET	2'-6"	483.89	483.27			---	479.85			HO. CO. D-4.03	N 583,516 E 1,347,342	PUBLIC
I-127	A-10 INLET	2'-6"	467.13	466.89			461.88	461.78			HO. CO. D-4.03	N 583,825 E 1,347,070	PUBLIC
I-128	A-10 INLET	2'-6"	467.37	467.13			---	462.17			HO. CO. D-4.03	N 583,798 E 1,347,079	PUBLIC
I-132	A-10 INLET	2'-6"	481.18	480.50			476.39	476.29			HO. CO. D-4.03	N 583,617 E 1,347,450	PUBLIC
I-133	A-10 INLET	2'-6"	481.47	480.67			476.73	476.63			HO. CO. D-4.03	N 583,614 E 1,347,426	PUBLIC
I-135	A-10 INLET	2'-6"	484.01	483.73			---	479.81			HO. CO. D-4.03	N 583,552 E 1,347,345	PUBLIC
I-136	'S' INLET	2'-7"	473.94	---			470.97	470.24			HO. CO. D-4.24	N 583,540 E 1,347,579	PUBLIC
I-136A	'S' INLET	2'-7"	475.45	---			472.63	472.53			HO. CO. D-4.24	N 583,493 E 1,347,584	PUBLIC
I-139	A-10 INLET	2'-6"	486.92	486.35			481.70	481.60			HO. CO. D-4.03	N 583,509 E 1,347,464	PUBLIC
I-140	A-10 INLET	2'-6"	486.92	486.35			---	482.19			HO. CO. D-4.03	N 583,506 E 1,347,440	PUBLIC
I-144	COG-15 INLET	2'-6"	494.03	493.65			488.90	488.80			SHA MD 374.62	N 583,356 E 1,347,424	PUBLIC
I-145	A-10 INLET	2'-6"	493.77	493.44			---	489.16			HO. CO. D-4.03	N 583,378 E 1,347,413	PUBLIC
I-147A	'S' INLET	2'-7"	487.10	---			---	484.12			HO. CO. D-4.24	N 582,989 E 1,347,287	PRIVATE
I-149	A-10 INLET	2'-6"	496.76	496.63			491.91	491.81			HO. CO. D-4.03	N 583,045 E 1,347,181	PUBLIC
I-150	A-10 INLET	2'-6"	497.44	497.31			---	493.08			HO. CO. D-4.03	N 583,104 E 1,347,173	PUBLIC
I-162	A-10 INLET	2'-6"	471.33	470.89			466.37	466.27			HO. CO. D-4.03	N 583,279 E 1,346,704	PUBLIC
I-163	A-10 INLET	2'-6"	471.33	470.89			---	466.61			HO. CO. D-4.03	N 583,254 E 1,346,642	PUBLIC
I-165	COS-15 INLET	2'-6"	466.73	466.73			---	461.61			SHA MD 374.63	N 583,564 E 1,346,745	PUBLIC
I-167	COS-15 INLET	2'-6"	466.76	466.76			---	463.71			SHA MD 374.63	N 583,551 E 1,346,822	PUBLIC
I-176	A-10 INLET	2'-6"	484.34	484.20			---	481.23			HO. CO. D-4.03	N 583,251 E 1,346,457	PUBLIC
I-178	COS-15 INLET	2'-6"	482.89	482.89			---	480.21			SHA MD 374.63	N 583,379 E 1,347,001	PUBLIC
I-180	A-10 INLET	2'-6"	482.88	482.88			---	479.75			HO. CO. D-4.03	N 583,364 E 1,347,020	PUBLIC
I-185	A-10 INLET	2'-6"	490.12	489.59			485.37	485.27			HO. CO. D-4.03	N 583,457 E 1,347,196	PUBLIC
I-186	A-10 INLET	2'-6"	490.06	489.62			---	485.62			HO. CO. D-4.03	N 583,465 E 1,347,218	PUBLIC

STRUCTURE SCHEDULE													
NO	TYPE	WIDTH (INSIDE)	TOP ELEVATION PROPOSED UPPER	TOP ELEVATION PROPOSED LOWER	TOP ELEVATION AS-BUILT UPPER	TOP ELEVATION AS-BUILT LOWER	INVERT PROPOSED UPPER	INVERT PROPOSED LOWER	INVERT AS-BUILT UPPER	INVERT AS-BUILT LOWER	STD. DETAIL	LOCATIONS ⟨1⟩	PRIVATE/ PUBLIC
I-189	A-10 INLET	2'-6"	467.61	467.48			---	464.73			HO. CO. D-4.03	N 583,467 E 1,346,762	PUBLIC
I-194	A-10 INLET	2'-6"	487.57	486.90			---	484.22			HO. CO. D-4.03	N 583,123 E 1,346,924	PUBLIC
I-197	A-10 INLET	2'-6"	424.34	424.39			---	424.67			HO. CO. D-4.03	N 584,983 E 1,346,668	PUBLIC
I-198	A-10 INLET	2'-6"	424.25	424.28			---	424.72			HO. CO. D-4.03	N 584,952 E 1,346,642	PUBLIC
I-201	DOUBLE S INLET	2'-7.5"	486.91	---			481.80	481.70			HO. CO. D-4.25	N 582,903 E 1,346,163	PRIVATE
I-203	A-5 INLET	2'-6"	495.00	---			---	489.99			HO. CO. D-4.02	N 582,746 E 1,346,128	PRIVATE
RS-2	DOUBLE S RISER	2'-7.5"	424.50	---			420.17	414.78			HO. CO. D-4.25	N 584,724 E 1,346,766	PUBLIC
RS-7	S RISER	2'-7"	432.00	---			427.67	423.27			HO. CO. D-4.24	N 584,608 E 1,346,840	PUBLIC
RS-13	DOUBLE S RISER	2'-7.5"	442.00	---			437.67	434.33			HO. CO. D-4.25	N 584,512 E 1,346,990	PUBLIC
RS-15	S RISER	2'-7"	445.50	---			441.17	438.01			HO. CO. D-4.24	N 584,608 E 1,347,054	PUBLIC
RS-19	S RISER	2'-7"	446.50	---			442.17	441.25			HO. CO. D-4.24	N 584,757 E 1,347,188	PUBLIC
RS-26	S RISER	2'-7"	445.50	---			441.17	440.25			HO. CO. D-4.24	N 584,518 E 1,347,133	PUBLIC
RS-33	DOUBLE S RISER	2'-7.5"	429.50	---			425.25	424.33			HO. CO. D-4.25	N 584,999 E 1,347,105	PUBLIC
RS-35	S RISER	2'-7"	432.00	---			427.67	426.75			HO. CO. D-4.24	N 584,878 E 1,347,147	PUBLIC
RS-41	DOUBLE S RISER	2'-7.5"	430.00	---			425.67	418.56			HO. CO. D-4.25	N 585,034 E 1,347,263	PUBLIC
RS-45	DOUBLE S RISER	2'-7.5"	440.50	---			436.17	435.25			HO. CO. D-4.25	N 584,842 E 1,347,312	PUBLIC
RS-53	DOUBLE S RISER	2'-7.5"	445.00	---			440.67	436.10			HO. CO. D-4.25	N 584,733 E 1,347,583	PUBLIC
RS-56	S RISER	2'-7"	448.00	---			443.67	442.75			HO. CO. D-4.24	N 584,805 E 1,347,442	PUBLIC
RS-63	S RISER	2'-7"	451.00	---			446.67	445.75			HO. CO. D-4.24	N 584,657 E 1,347,452	PUBLIC
RS-68	S RISER	2'-7"	450.50	---			446.17	444.28			HO. CO. D-4.24	N 584,298 E 1,347,163	PUBLIC
RS-69	S RISER	2'-7"	452.50	---			448.17	446.65			HO. CO. D-4.24	N 584,394 E 1,347,279	PUBLIC
RS-72	DOUBLE S RISER	2'-7.5"	454.50	---			455.17	454.25			HO. CO. D-4.25	N 584,392 E 1,347,411	PUBLIC
RS-80	S RISER	2'-7"	454.00	---			449.67	448.75			HO. CO. D-4.24	N 548,508 E 1,347,306	PRIVATE
RS-82	DOUBLE S RISER	2'-7.5"	455.00	---			450.67	445.05			HO. CO. D-4.25	N 548,134 E 1,347,219	PUBLIC
RS-84	DOUBLE S RISER	2'-7.5"	462.00	---			457.67	456.75			HO. CO. D-4.25	N 584,201 E 1,347,438	PUBLIC
RS-92	S RISER	2'-7"	457.00	---			452.67	451.75			HO. CO. D-4.24	N 584,091 E 1,347,374	PUBLIC
RS-94	S RISER	2'-7"	463.50	---			---	458.25			HO. CO. D-4.24	N 584,013 E 1,347,400	PRIVATE
RS-99	S RISER	2'-7"	454.50	---			455.17	450.95			HO. CO. D-4.24	N 538,979 E 1,347,181	PUBLIC
RS-106	S RISER	2'-7"	471.50	---			467.17	466.25			HO. CO. D-4.24	N 538,687 E 1,347,215	PRIVATE
RS-110	S RISER	2'-7"	460.50	---			456.17	455.25			HO. CO. D-4.24	N 538,837 E 1,347,237	PUBLIC
RS-114	DOUBLE S RISER	2'-7.5"	467.00	---			462.67	461.75			HO. CO. D-4.25	N 538,868 E 1,347,360	PUBLIC
RS-117	S RISER	2'-7"	468.50				464.17	462.75			HO. CO. D-4.24	N 583,800 E 1,347,462	PUBLIC
RS-121	S RISER	2'-7"	480.50	---			476.17	473.94			HO. CO. D-4.24	N 583,670 E 1,347,387	PUBLIC
RS-125	S RISER	2'-7"	462.50	---			458.17	457.74			HO. CO. D-4.24	N 583,906 E 1,347,013	PUBLIC
RS-130	DOUBLE S RISER	2'-7.5"	477.00	---			472.67	471.75			HO. CO. D-4.25	N 583,622 E 1,347,561	PUBLIC
RS-137	S RISER	2'-7"	482.00	---			477.67	475.33			HO. CO. D-4.24	N 583,514 E 1,347,561	PUBLIC
RS-142	DOUBLE S RISER	2'-7.5"	484.50	---			485.17	484.25			HO. CO. D-4.25	N 583,304 E 1,347,516	PUBLIC
RS-147	DOUBLE S RISER	2'-7.5"	492.50	---			488.17	483.11			HO. CO. D-4.25	N 583,012 E 1,347,210	PUBLIC
RS-152	DOUBLE S RISER	2'-7.5"	462.00	---			457.67	451.17			HO. CO. D-4.25	N 583,585 E 1,346,716	PUBLIC
RS-155	S RISER	2'-7"	464.50	---			460.17	457.47			HO. CO. D-4.24	N 583,535 E 1,346,880	PUBLIC
RS-160	S RISER	2'-7"	467.00	---			462.67	461.75			HO. CO. D-4.24	N 583,219 E 1,346,714	PUBLIC
RS-168	S RISER	2'-7"	472.00	---			467.67	466.75			HO. CO. D-4.24	N 583,501 E 1,346,934	PRIVATE
RS-169	DOUBLE S RISER	2'-7.5"	481.00	---			476.67	472.36			HO. CO. D-4.25	N 583,440 E 1,346,959	PUBLIC
RS-171	S RISER	2'-7"	480.50	---			476.17	474.60			HO. CO. D-4.24	N 583,358 E 1,347,068	PUBLIC
RS-174	S RISER	2'-7"	482.00	---			477.67	476.75			HO. CO. D-4.24	N 583,225 E 1,347,046	PUBLIC
RS-183	S RISER	2'-7"	486.00	---			481.67	480.75			HO. CO. D-4.24	N 583,446 E 1,347,136	PUBLIC
RS-187	DOUBLE S RISER	2'-7.5"	465.50	---			461.17	460.25			HO. CO. D-4.25	N 583,427 E 1,346,847	PUBLIC
RS-192	S RISER	2'-7"	485.00				480.67	479.75			HO. CO. D-4.24	N 583,034 E 1,346,878	PUBLIC

⟨1⟩ COORDINATE POINT GIVEN IS TO THE CENTER OF MANHOLES, RISERS AND S-INLETS, TO THE CENTERLINE OF A, COG, AND COS INLETS AT FACE OF CURB, AND AT CENTERLINE OF OUTLET OF END SECTIONS.

⟨2⟩ SEE SHEET 66 FOR TYPICAL RIP RAP DETAILS AND FOR OUTFALLS ONTO SLOPES GREATER THAN 10%.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6-24-19

GLW PLANNING | ENGINEERING | SURVEYING
3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:				
JRD				
DRAWN BY:				
JRD				
CHECKED BY:				
DEV	2018-09-17	⚠1 Revise storm drain to accommodate design from F 21-032	WSJ	DEV
	DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975 EXPIRATION DATE: MAY 26, 2020

1/2/19

STATE OF MARYLAND — CHRISTOPHER SEVENTH GUTSCHICK — PROFESSIONAL ENGINEER

STORM DRAIN STRUCTURE & PIPE SCHEDULES

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294
AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
NO SCALE	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	32 OF 92

F 17-001

L:\CADD\DRAWINGS\13013\PLANS BY GLW\13013-27-33-SD (PH3)\13013_27-33-SD PROFILES.dwg, 6/21/2019 2:27:33 PM, Christopher Gutschick

RIP RAP INFORMATION

SECTION	CLASS	LENGTH	D_{50}	THICKNESS	
HW-1	CLASS 1	9'	9.5"	19"	
HW-3	CLASS 1	9'	9.5"	19"	
HW-8	CLASS 1	14'	9.5"	19"	
HW-11	CLASS 1	24.5'	9.5"	19"	
HW-40	CLASS 1	16'	9.5"	19"	2
HW-52	CLASS 11	20'	16"	32"	2
HW-81	CLASS 1	17'	9.5"	19"	
HW-124	CLASS 1	9'	9.5"	19"	2
HW-151	CLASS 11	13'	16"	32"	
ES-6	CLASS 1	14'	9.5"	19"	
ES-20	CLASS 1	9'	9.5"	19"	
ES-23	CLASS 1	14'	9.5"	19"	
ES-27	CLASS 1	9'	9.5"	19"	
ES-29	CLASS 1	9'	9.5"	19"	
ES-31	CLASS 1	10'	9.5"	19"	2
ES-36	CLASS 1	9'	9.5"	19"	
ES-38	CLASS 1	9'	9.5"	19"	
ES-46	CLASS 1	9'	9.5"	19"	
ES-49	CLASS 1	17'	9.5"	19"	
ES-57	CLASS 1	9'	9.5"	19"	
ES-60	CLASS 1	12'	9.5"	19"	
ES-64	CLASS 1	9'	9.5"	19"	
ES-66	CLASS 1	17'	9.5"	19"	
ES-73	CLASS 1	9'	9.5"	19"	
ES-76	CLASS 1	9'	9.5"	19"	
ES-78	CLASS 1	9'	9.5"	19"	
ES-85	CLASS 1	9'	9.5"	19"	
ES-88	CLASS 1	9'	9.5"	19"	
ES-95	CLASS 1	9'	9.5"	19"	
ES-97	CLASS 11	22'	16"	32"	2
ES-107	CLASS 1	9'	9.5"	19"	
ES-111	CLASS 1	9'	9.5"	19"	
ES-115	CLASS 1	9'	9.5"	19"	
ES-118	CLASS 1	9'	9.5"	19"	
ES-122	CLASS 1	9'	9.5"	19"	
ES-126	CLASS 1	9'	9.5"	19"	
ES-131	CLASS 1	9'	9.5"	19"	
ES-138	CLASS 1	12'	9.5"	19"	
ES-143	CLASS 1	9'	9.5"	19"	
ES-148	CLASS 1	9'	9.5"	19"	
ES-161	CLASS 1	9'	9.5"	19"	
ES-164	CLASS 1	12'	9.5"	19"	
ES-166	CLASS 1	9'	9.5"	19"	
ES-175	CLASS 1	9'	9.5"	19"	
ES-177	CLASS 1	9'	9.5"	19"	
ES-179	CLASS 1	9'	9.5"	19"	
ES-184	CLASS 1	9'	9.5"	19"	
ES-188	CLASS 1	9'	9.5"	19"	
ES-190	CLASS 1	18'	9.5"	19"	
ES-193	CLASS 1	9'	9.5"	19"	

STRUCTURE SCHEDULE

NO	TYPE	WIDTH (INSIDE)	TOP ELEVATION PROPOSED UPPER	TOP ELEVATION PROPOSED LOWER	TOP ELEVATION AS-BUILT UPPER	TOP ELEVATION AS-BUILT LOWER	INVERT PROPOSED UPPER	INVERT PROPOSED LOWER	INVERT AS-BUILT UPPER	INVERT AS-BUILT LOWER	STD. DETAIL	LOCATIONS 1	PRIVATE/ PUBLIC	
MH-6A	STANDARD MANHOLE	4'-0"	423.76	---			417.23	417.13			HO. CO. 6-5.12	N 584,608 E 1,346,805	PUBLIC	
MH-12	STANDARD MANHOLE	4'-0"	432.00	---			426.04	425.94			HO. CO. 6-5.12	N 584,461 E 1,346,938	PUBLIC	
MH-14	STANDARD MANHOLE	4'-0"	447.15	---			437.74	437.64			HO. CO. 6-5.12	N 584,585 E 1,347,074	PUBLIC	
MH-16	STANDARD MANHOLE	4'-0"	444.20	---			438.82	438.72			HO. CO. 6-5.12	N 584,657 E 1,347,012	PUBLIC	
MH-17	STANDARD MANHOLE	4'-0"	447.00	---			440.46	440.36			HO. CO. 6-5.12	N 584,760 E 1,347,131	PUBLIC	2
MH-18	STANDARD MANHOLE	4'-0"	448.30	---			440.98	440.88			HO. CO. 6-5.12	N 584,718 E 1,347,173	PUBLIC	2
MH-32	STANDARD MANHOLE	4'-0"	420.80	---			417.44	410.54			HO. CO. 6-5.12	N 585,039 E 1,347,041	PUBLIC	
MH-34	STANDARD MANHOLE	4'-0"	434.29	---			426.41	426.31			HO. CO. 6-5.12	N 584,915 E 1,347,141	PUBLIC	
MH-42	STANDARD MANHOLE	4'-0"	436.80	---			432.72	432.62			HO. CO. 6-5.12	N 584,925 E 1,347,275	PUBLIC	
MH-43	STANDARD MANHOLE	4'-0"	434.17	---			435.50	434.40			HO. CO. 6-5.12	N 584,927 E 1,347,330	PUBLIC	
MH-44	STANDARD MANHOLE	4'-0"	441.67	---			435.06	434.96			HO. CO. 6-5.12	N 584,914 E 1,347,378	PUBLIC	
MH-54	STANDARD MANHOLE	4'-0"	451.13	---			441.58	441.48			HO. CO. 6-5.12	N 584,720 E 1,347,476	PUBLIC	
MH-55	STANDARD MANHOLE	4'-0"	448.10	---			442.54	442.44			HO. CO. 6-5.12	N 584,809 E 1,347,466	PUBLIC	
MH-62	STANDARD MANHOLE	4'-0"	452.99	---			444.85	444.75			HO. CO. 6-5.12	N 584,662 E 1,347,485	PUBLIC	
MH-67	STANDARD MANHOLE	4'-0"	446.20	---			441.86	441.76			HO. CO. 6-5.12	N 584,264 E 1,347,124	PUBLIC	
MH-70	STANDARD MANHOLE	4'-0"	456.80	---			453.23	448.02			HO. CO. 6-5.12	N 584,450 E 1,347,338	PUBLIC	
MH-71	STANDARD MANHOLE	4'-0"	459.88	---			454.12	454.02			HO. CO. 6-5.12	N 584,390 E 1,347,395	PUBLIC	
MH-83	STANDARD MANHOLE	4'-0"	460.42	---			455.71	451.21			HO. CO. 6-5.12	N 584,123 E 1,347,373	PUBLIC	
MH-84A	STANDARD MANHOLE	4'-0"	458.61	---			454.66	454.56			HO. CO. 6-5.12	N 584,164 E 1,347,310	PUBLIC	
MH-93	STANDARD MANHOLE	4'-0"	465.31	---			458.06	457.96			HO. CO. 6-5.12	N 584,012 E 1,347,378	PRIVATE	
MH-98	STANDARD MANHOLE	5'-0"	448.00	---			444.49	443.99			HO. CO. 6-5.13	N 584,031 E 1,347,121	PUBLIC	
MH-100	STANDARD MANHOLE	4'-0"	463.97	---			453.38	453.28			HO. CO. 6-5.12	N 583,912 E 1,347,258	PUBLIC	
MH-101	STANDARD MANHOLE	4'-0"	465.17	---			457.49	453.97			HO. CO. 6-5.12	N 583,883 E 1,347,268	PUBLIC	
MH-102	STANDARD MANHOLE	4'-0"	466.78	---			458.66	458.56			HO. CO. 6-5.12	N 583,866 E 1,347,301	PUBLIC	
MH-103	STANDARD MANHOLE	4'-0"	464.10	---			460.13	460.23			HO. CO. 6-5.12	N 583,851 E 1,347,353	PUBLIC	
MH-104	STANDARD MANHOLE	5'-0"	471.42	---			462.03	461.53			HO. CO. 6-5.13	N 583,800 E 1,347,374	PUBLIC	
MH-105	STANDARD MANHOLE	5'-0"	475.91	---			472.84	464.41			HO. CO. 6-5.13	N 583,700 E 1,347,341	PUBLIC	
MH-117A	STANDARD MANHOLE	4'-0"	474.08	---			465.31	465.21			HO. CO. 6-5.12	N 583,811 E 1,347,545	PUBLIC	
MH-117B	STANDARD MANHOLE	4'-0"	474.17	---			467.97	467.72			HO. CO. 6-5.12	N 583,720 E 1,347,557	PUBLIC	
MH-129	STANDARD MANHOLE	4'-0"	476.34	---			471.52	464.33			HO. CO. 6-5.12	N 583,623 E 1,347,569	PUBLIC	
MH-134	STANDARD MANHOLE	4'-0"	483.56	---			478.64	478.54			HO. CO. 6-5.12	N 583,555 E 1,347,429	PUBLIC	
MH-136B	STANDARD MANHOLE	4'-0"	482.00	---			479.11	479.01			HO. CO. 6-5.12	N 583,349 E 1,347,516	PUBLIC	
MH-136C	STANDARD MANHOLE	4'-0"	484.85	---			483.48	483.38			HO. CO. 6-5.12	N 583,307 E 1,347,539	PUBLIC	
MH-146	STANDARD MANHOLE	4'-0"	490.32	---			479.31	479.06			HO. CO. 6-5.12	N 582,981 E 1,346,955	PUBLIC	
MH-146A	STANDARD MANHOLE	4'-0"	485.33	---			481.30	481.20			HO. CO. 6-5.12	N 582,940 E 1,347,093	PUBLIC	
MH-146B	STANDARD MANHOLE	4'-0"	485.14	---			481.81	481.71			HO. CO. 6-5.12	N 582,965 E 1,347,137	PUBLIC	
MH-146C	STANDARD MANHOLE	4'-0"	485.96	---			482.54	482.44			HO. CO. 6-5.12	N 583,028 E 1,347,156	PUBLIC	
MH-149A	STANDARD MANHOLE	4'-0"	487.02	---			482.31	482.21			HO. CO. 6-5.12	N 583,060 E 1,347,190	PUBLIC	
MH-153	STANDARD MANHOLE	5'-0"	466.56	---			455.81	455.71			HO. CO. 6-5.13	N 583,534 E 1,346,741	PUBLIC	
MH-154	STANDARD MANHOLE	5'-0"	466.59	---			456.62	456.52			HO. CO. 6-5.13	N 583,580 E 1,346,824	PUBLIC	
MH-156	STANDARD MANHOLE	4'-0"	470.03	---			466.65	458.06			HO. CO. 6-5.12	N 583,503 E 1,346,921	PUBLIC	
MH-157	STANDARD MANHOLE	5'-0"	471.80	---			468.69	458.35			HO. CO. 6-5.13	N 583,482 E 1,346,910	PUBLIC	
MH-158	STANDARD MANHOLE	4'-0"	473.00	---			459.99	459.59			HO. CO. 6-5.12	N 583,414 E 1,346,873	PUBLIC	2
MH-159	STANDARD MANHOLE	4'-0"	474.00	---			461.55	461.45			HO. CO. 6-5.12	N 583,268 E 1,346,796	PUBLIC	2
MH-170	STANDARD MANHOLE	4'-0"	483.38	---			473.46	473.36			HO. CO. 6-5.12	N 583,404 E 1,347,001	PUBLIC	
MH-170A	STANDARD MANHOLE	4'-0"	483.05	---			474.26	474.16			HO. CO. 6-5.12	N 583,374 E 1,347,037	PUBLIC	
MH-172	STANDARD MANHOLE	4'-0"	486.21	---			475.27	475.17			HO. CO. 6-5.12	N 583,327 E 1,347,106	PUBLIC	
MH-173	STANDARD MANHOLE	4'-0"	490.00	---			476.50	476.40			HO. CO. 6-5.12	N 583,215 E 1,347,073	PUBLIC	2
MH-181	STANDARD MANHOLE	4'-0"	483.65	---			477.62	477.52			HO. CO. 6-5.12	N 583,414 E 1,347,069	PUBLIC	
MH-182	STANDARD MANHOLE	4'-0"	485.60	---			479.62	479.52			HO. CO. 6-5.12	N 583,457 E 1,347,121	PUBLIC	
MH-190A	STANDARD MANHOLE	4'-0"	486.30	---			475.45	475.35			HO. CO. 6-5.12	N 583,061 E 1,346,793	PUBLIC	
MH-190B	STANDARD MANHOLE	4'-0"	488.01	---			476.02	475.92			HO. CO. 6-5.12	N 583,029 E 1,346,796	PUBLIC	
MH-191	STANDARD MANHOLE	4'-0"	488.44	---			477.76	477.01			HO. CO. 6-5.12	N 583,007 E 1,346,869	PUBLIC	
MH-195	STANDARD MANHOLE	4'-0"	430.58	---			423.42	422.55			HO. CO. 6-5.12	N 585,049 E 1,346,593	PUBLIC	
MH-195A	SHALLOW MANHOLE	4'-0"	418.53	---			416.52	416.42			HO. CO. 6-5.12	N 585,106 E 1,346,667	PRIVATE	
MH-195B	ADS STRUCTURE	2'-0"	429.43	---			422.07	421.97			3	N 585,068 E 1,346,615	PRIVATE	
MH-196	STANDARD MANHOLE	4'-0"	429.32	---			424.50	424.40			HO. CO. 6-5.12	N 584,970 E 1,346,657	PUBLIC	
MH-202	STANDARD MANHOLE	4'-0"	498.60	---			487.80	487.70			HO. CO. 6-5.12	N 582,805 E 1,346,489	PRIVATE	

STRUCTURE SCHEDULE

NO	TYPE	WIDTH (INSIDE)	TOP ELEVATION PROPOSED UPPER	TOP ELEVATION PROPOSED LOWER	TOP ELEVATION AS-BUILT UPPER	TOP ELEVATION AS-BUILT LOWER	INVERT PROPOSED UPPER	INVERT PROPOSED LOWER	INVERT AS-BUILT UPPER	INVERT AS-BUILT LOWER	STD. DETAIL	LOCATIONS 1	PRIVATE/ PUBLIC
HW-1	HEADWALL	1'-3"	417.23	---			---	414.48			HO. CO. D-5.11	N 584,728 E 1,346,735	PUBLIC
HW-3	HEADWALL	1'-3"	426.25	---			---	423.50			HO. CO. D-5.11	N 584,754 E 1,346,774	PUBLIC
HW-8	HEADWALL	1'-3"	433.75	---			---	431.00			HO. CO. D-5.11	N 584,660 E 1,346,883	PUBLIC
HW-11	HEADWALL	1'-3"	427.97	---			---	425.22			HO. CO. D-5.11	N 584,466 E 1,346,922	PUBLIC
HW-40	HEADWALL	1'-3"	419.04	---			---	416.29			HO. CO. D-5.11	N 584,082 E 1,347,258	PUBLIC
HW-52	HEADWALL	1'-3"	434.49	---			---	431.74			HO. CO. D-5.11	N 584,134 E 1,347,629	PUBLIC
HW-81	HEADWALL	1'-6"	446.84	---			---	443.84			HO. CO. D-5.11	N 584,137 E 1,347,179	PUBLIC
HW-124	HEADWALL	1'-3"	454.16	---			---	451.41			HO. CO. D-5.11	N 583,937 E 1,347,998	PUBLIC
HW-151	HEADWALL	2'-0"	453.43	---			---	449.93			HO. CO. D-5.11	N 583,610 E 1,346,681	PUBLIC
ES-6	END SECTION	1'-3"	416.55	---			---	413.30			HO. CO. D-5.51	N 584,638 E 1,346,750	PUBLIC
ES-20	END SECTION	1'-3"	446.75	---			---	445.50			HO. CO. D-5.51	N 584,698 E 1,347,217	PUBLIC
ES-23	END SECTION	1'-3"	442.25	---			---	441.00			HO. CO. D-5.51	N 584,513 E 1,347,027	PUBLIC
ES-27	END SECTION	1'-3"	445.75	---			---	444.50			HO. CO. D-5.51	N 584,543 E 1,347,135	PUBLIC
ES-29	END SECTION	1'-3"	445.75	---			---	444.50			HO. CO. D-5.51	N 584,547 E 1,347,083	PUBLIC
ES-31	END SECTION	1'-6"	411.73	---			---	410.23			HO. CO. D-5.51	N 585,064 E 1,347,070	PUBLIC
ES-36	END SECTION	1'-3"	432.25	---			---	431.00			HO. CO. D-5.51	N 584,880 E 1,347,164	PUBLIC
ES-38	END SECTION	1'-3"	429.75	---			---	428.50			HO. CO. D-5.51	N 584,960 E 1,347,136	PUBLIC
ES-46	END SECTION	1'-3"	440.75	---			---	439.50			HO. CO. D-5.51	N 584,864 E 1,347,404	PUBLIC
ES-49	END SECTION	1'-3"	430.25	---			---	429.00			HO. CO. D-5.51	N 584,986 E 1,347,250	PUBLIC
ES-57	END SECTION	1'-3"	448.25	---			---	447.00			HO. CO. D-5.51	N 584,737 E 1,347,452	PUBLIC
ES-60	END SECTION	1'-3"	445.25	---			---	444.00			HO. CO. D-5.51	N 584,743 E 1,347,540	PUBLIC
ES-64	END SECTION	1'-3"	451.25	---			---	450.00			HO. CO. D-5.51	N 584,643 E 1,347,464	PUBLIC
ES-66	END SECTION	1'-6"	442.50	---			---	441.00			HO. CO. D-5.51	N 584,264 E 1,347,097	PUBLIC
ES-73	END SECTION	1'-3"	454.75	---			---	453.50			HO. CO. D-5.51	N 584,402 E 1,347,442	PUBLIC
ES-76	END SECTION	1'-3"	450.75	---			---	449.50			HO. CO. D-5.51	N 584,334 E 1,347,183	PUBLIC
ES-78	END SECTION	1'-3"	452.75	---			---	451.50			HO. CO. D-5.51	N 584,344 E 1,347,247	PUBLIC
ES-85	END SECTION	1'-3"	462.25	---			---	461.00			HO. CO. D-5.51	N 584,196 E 1,347,461	PUBLIC
ES-88	END SECTION	1'-3"	455.25	---			---	454.00			HO. CO. D-5.51	N 584,147 E 1,347,272	PUBLIC
ES-95	END SECTION	1'-3"	457.25	---			---	456.00			HO. CO. D-5.51	N 584,104 E 1,347,351	PUBLIC
ES-97	END SECTION	2'-6"	447.83	---			---	443.83			HO. CO. D-5.51	N 584,048 E 1,347,121	PUBLIC
ES-107	END SECTION	1'-3"	459.75	---			---	458.50			HO. CO. D-5.51	N 583,951 E 1,347,193	PUBLIC
ES-111	END SECTION	1'-3"	460.75	---			---	459.50			HO. CO. D-5.51	N 583,843 E 1,347,219	PUBLIC
ES-115	END SECTION	1'-3"	467.25	---			---	466.00			HO. CO. D-5.51	N 583,871 E 1,347,312	PUBLIC
ES-118	END SECTION	1'-3"	468.75	---			---	467.50			HO. CO. D-5.51	N 583,787 E 1,347,457	PUBLIC
ES-122	END SECTION	1'-3"	480.75	---			---	479.50			HO. CO. D-5.51	N 583,613 E 1,347,389	PUBLIC
ES-126	END SECTION	1'-3"	462.75	---			---	461.50			HO. CO. D-5.51	N 583,851 E 1,347,054	PUBLIC
ES-131	END SECTION	1'-3"	477.25	---			---	476.00			HO. CO. D-5.51	N 583,617 E 1,347,481	PUBLIC
ES-138	END SECTION	1'-3"	482.25	---			---	481.00			HO. CO. D-5.51	N 583,510 E 1,347,446	PUBLIC
ES-143	END SECTION	1'-3"	484.75	---			---	488.50			HO. CO. D-5.51	N 583,344 E 1,347,460	PUBLIC
ES-148	END SECTION	1'-3"	492.75	---			---	491.50			HO. CO. D-5.51	N 583,028 E 1,347,209	PUBLIC
ES-161	END SECTION	1'-3"	467.25	---			---	466.00			HO. CO. D-5.51	N 583,300 E 1,346,725	PUBLIC
ES-164	END SECTION	1'-3"	462.25	---			---	461.00			HO. CO. D-5.51	N 583,572 E 1,346,763	PUBLIC
ES-166	END SECTION	1'-3"	464.75	---			---	463.50			HO. CO. D-5.51	N 583,545 E 1,346,842	PUBLIC
ES-175	END SECTION	1'-3"	482.25	---			---	481.00			HO. CO. D-5.51	N 583,243 E 1,346,981	PUBLIC
ES-177	END SECTION	1'-3"	481.25	---			---	480.00			HO. CO. D-5.51	N 583,345 E 1,346,983	PUBLIC
ES-179	END SECTION	1'-3"	480.75	---			---	479.50			HO. CO. D-5.51	N 583,347 E 1,347,041	PUBLIC
ES-184	END SECTION	1'-3"	486.25	---			---	485.00			HO. CO. D-5.51	N 583,456 E 1,347,167	PUBLIC
ES-188	END SECTION	1'-3"	465.75	---			---	464.50			HO. CO. D-5.51	N 583,456 E 1,346,785	PUBLIC
ES-190	END SECTION	2'-0"	476.03	---			---	474.03			HO. CO. D-5.51	N 583,128 E 1,346,715	PUBLIC
ES-193	END SECTION	1'-3"	485.25	---			---	484.00			HO. CO. D-5.51	N 583,102 E 1,346,611	PUBLIC
ES-200	END SECTION	2'-0"	479.93	---			---	477.93			HO. CO. D-5.51	N 583,012 E 1,345,801	PRIVATE

1 COORDINATE POINT GIVEN IS TO THE CENTER OF MANHOLES, RISERS AND S-INLETS, TO THE CENTERLINE OF A, COS, AND COS INLETS AT FACE OF CURB, AND AT CENTERLINE OF OUTLET OF END SECTIONS.

2 SEE SHEET 66 FOR TYPICAL RIP RAP DETAILS AND FOR OUTFALLS ONTO SLOPES GREATER THAN 10%.

3 PRODUCT IS 24" CATCH BASIN PER ADS.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.24.19

GLW PLANNING | ENGINEERING | SURVEYING
3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:	DRAWN BY:	CHECKED BY:
JRD	JRD	DEV

DATE	REVISION	BY	APP'R.
2021-03-19	4 Revise Structure Types To Accomodate Grading Snowworks#P-024	WSJ	DEV

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975 EXPIRATION DATE: MAY 26, 2020

STATE OF MARYLAND — CARLTON KENNETH GUTSCHICK — PROFESSIONAL ENGINEER

1/2/19

STORM DRAIN STRUCTURE SCHEDULE & RIPRAP INFORMATION

WESTMOUNT - PHASE 3

LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F

A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
NO SCALE	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	33 OF 71

F 17-001

L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PH3)\13013_27-33-SD PROFILES.dwg, PLOTTED: 2/22/2019 4:25 PM, LAST SAVED: 2/22/2019 5:08 PM, PLOTTED BY: Jennifer Jacobs

NOTES:

1) FOR STORM DRAIN SIZES, SEE SHEETS 21 THRU 33.
2) WHERE LOD IS NOT SHOWN, SEDIMENT CONTROL DEVICE DENOTES LIMIT OF DISTURBANCE.
3) CONTRACTOR MUST TURN ALL SILT FENCE AND SUPER SILT FENCE UPHILL TWO FEET IN ELEVATION EVERY TWENTY FIVE FEET.
4) FOR DUST CONTROL INFORMATION, SEE SHEET 51.
5) FOR THE SEQUENCE OF CONSTRUCTION, SEE SHEET 52 and 85. ⚠
6) SEDIMENT CONTROLS INTERCEPTED BY THE INSTALLATION OF STORM DRAINS ARE TO BE REPAIRED IMMEDIATELY.
7) TEMPORARY DISTURBANCES TO FOREST CONSERVATION AREAS AS A RESULT OF SEDIMENT CONTROL WILL BE STABILIZED AND PLANTED WHEN THE DEVICES ARE REMOVED.

DISTURBANCE NOTE:
NO MORE THAN 20 ACRES OF GRADING MAY BE OPEN AT "ANY" ONE TIME.

GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)
1 inch = 200 ft.

BUILDER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HSCD."

M. Jenny Ritter — 1/2/19
SIGNATURE OF DEVELOPER/BUILDER — DATE

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

1/2/19
SIGNATURE OF ENGINEER — DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

John R. Robertson — 2/9/18
HOWARD S.C.D. — DATE

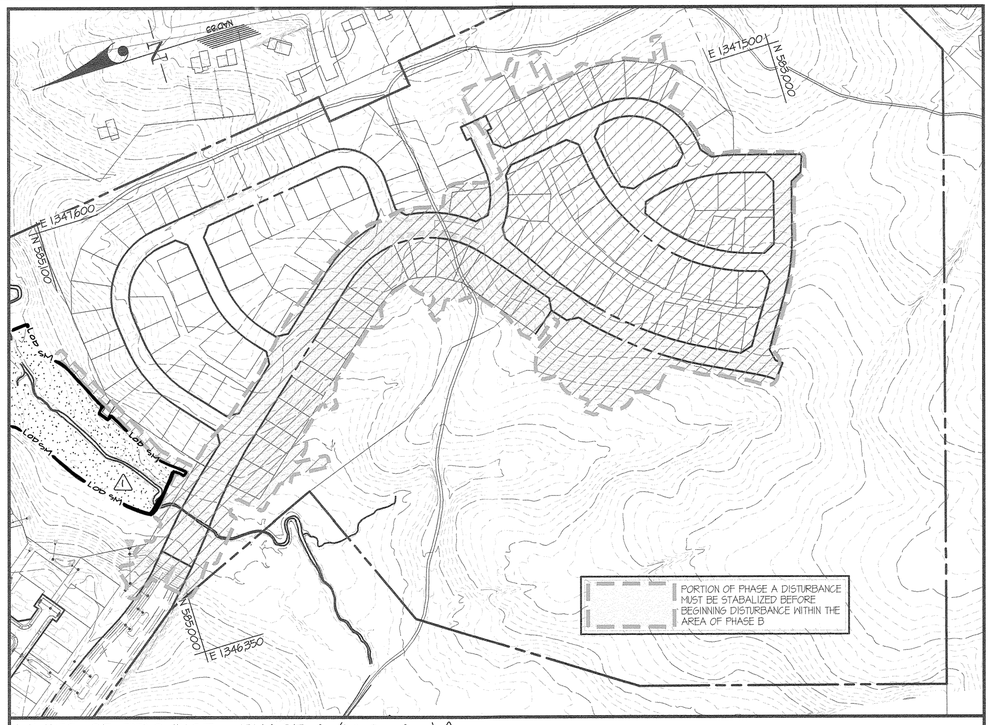
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

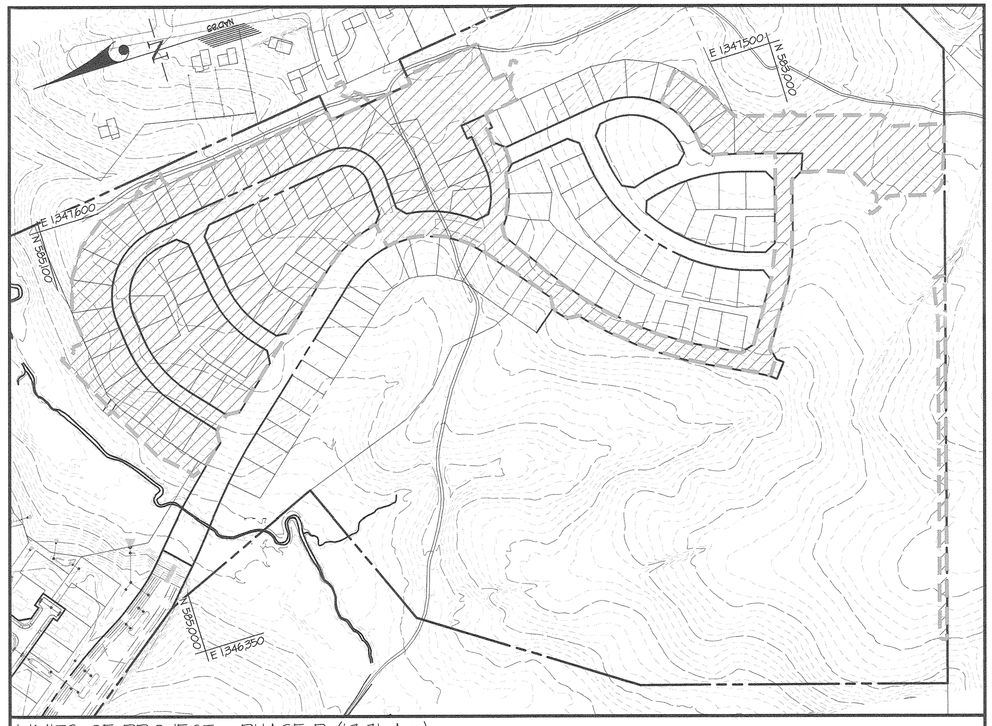
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6.27.19

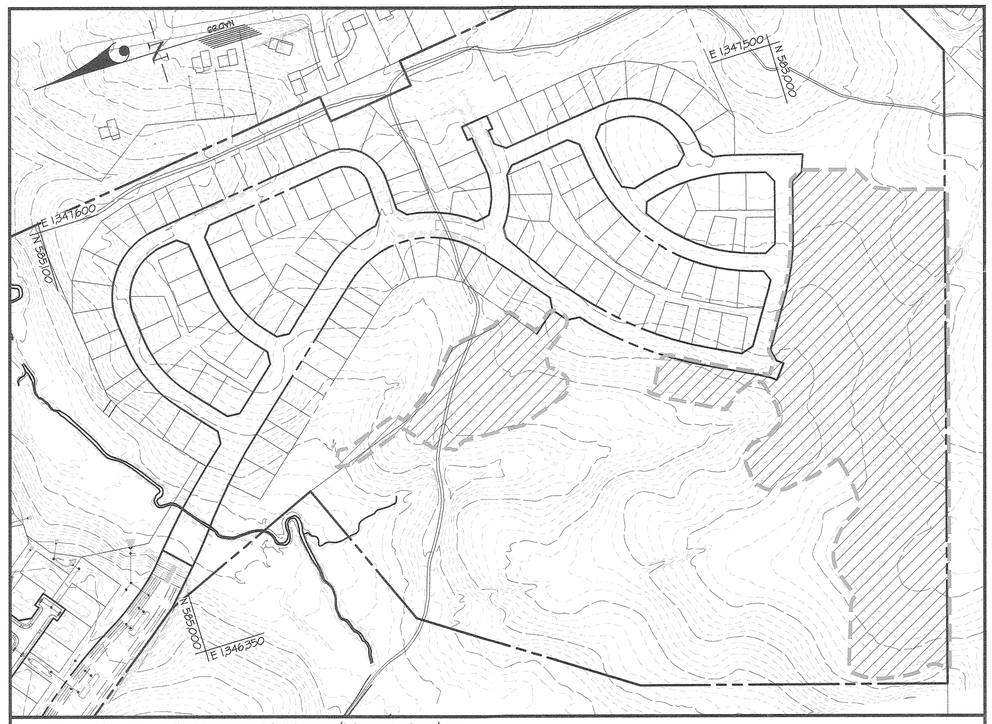
Chief, Development Engineering Division — Date 6.24.19



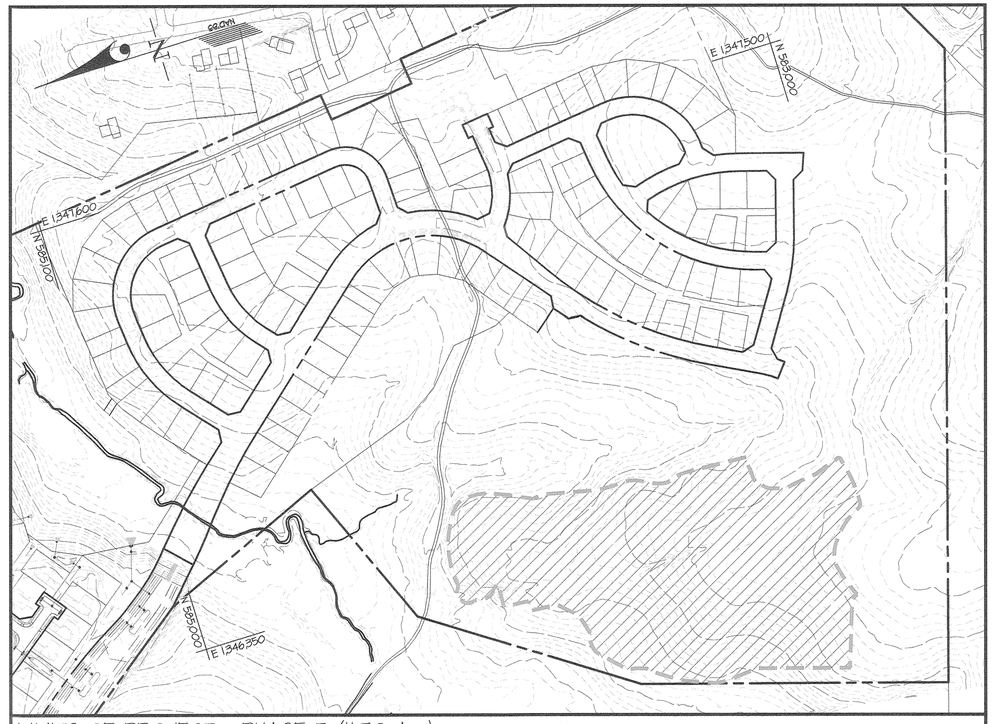
LIMITS OF PROJECT - PHASE A (22.9 Ac.) ⚠ — SCALE: 1" = 200'



LIMITS OF PROJECT - PHASE B (19.91 Ac.) — SCALE: 1" = 200'



LIMITS OF PROJECT - PHASE C (16.00 Ac.) — SCALE: 1" = 200'



LIMITS OF PROJECT - PHASE D (11.70 Ac.) — SCALE: 1" = 200'

GLW
PLANNING | ENGINEERING | SURVEYING
3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:	DATE	REVISION	BY	APP'R.
JRD				
DRAWN BY: JRD				
CHECKED BY: DEV	2020-4-22	⚠ showed sediment mitigation work areas, rev. note #5 to indicate where additional info can be found within plan set & rev. address	klp	

PREPARED FOR: ⚠
WESTMOUNT DEVELOPMENT CORPORATION
307 International Circle,
Suite 130
Hunt Valley, MD 21030
410-880-4480
Attn: Robert Goodier

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975
EXPIRATION DATE: MAY 26, 2020

STATE OF MARYLAND — CHRISTOPHER EDMONDSON — PROFESSIONAL ENGINEER

4/2/19

SEDIMENT CONTROL PLAN - PROJECT PHASES A, B, C & D

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 200'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	34 OF 92

F 17-001

L:\CADD\DRAWINGS\13013\PLANS BY: GLW\ROADS-SD (PH3)\13013_34_SC - Overall Phasing Plan.dwg, 6/24/2019 8:14:14 AM, Adobe PDF

SEDIMENT CONTROL LEGEND

400	EXISTING CONTOUR
400	PROPOSED CONTOUR
	EXISTING TREELINE
SCE	STABILIZED CONSTRUCTION ENTRANCE
RRIP	RIP-RAP INFLOW PROTECTION
> >	EARTH DIKE
FCE	FOREST CONSERVATION ESMT.
SSF	PROPOSED SUPER SILT FENCE
LOD	LIMIT OF DISTURBANCE
	PROPOSED STORM DRAIN
FP	100 YEAR FLOODPLAIN
SB	STREAM BUFFER
	CENTERLINE OF STREAM
WB	WETLAND BUFFER
	BAFFLE BOARD
	LIMIT OF WETLAND
	WETLAND AREA
TSSM	TEMPORARY SOIL STABALIZATION MATTING
AGIP	AT GRADE INLET PROTECTION
CIP	CURB INLET PROTECTION
IB	INLET BLOCKING
CWD	CLEAR WATER DIVERSION
GP	GABION PROTECTION
TSDD	TEMPORARY STORM DRAIN DIVERSION
CWP	CLEAR WATER PIPE THROUGH SUPER SILT FENCE
T.S.O.S	TEMPORARY STONE OUTLET STRUCTURE
LOD-SM	⚠ Limit of Disturbance For Stream Mitigation Work

BAFFLE TABLE			
	BAFFLE	LENGTH	TOP ELEV
BASIN 1	1A	89.0'	417.51
	2A	86.6'	443.49
BASIN 2	2B	87.1'	

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

BUILDER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HSCD."

M. Jerry Rutter — 1/2/19
SIGNATURE OF DEVELOPER/BUILDER — DATE

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

CWJ — 1/2/19
SIGNATURE OF ENGINEER — DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

John R. Robertson — 1/9/18
HOWARD S.C.D. — DATE

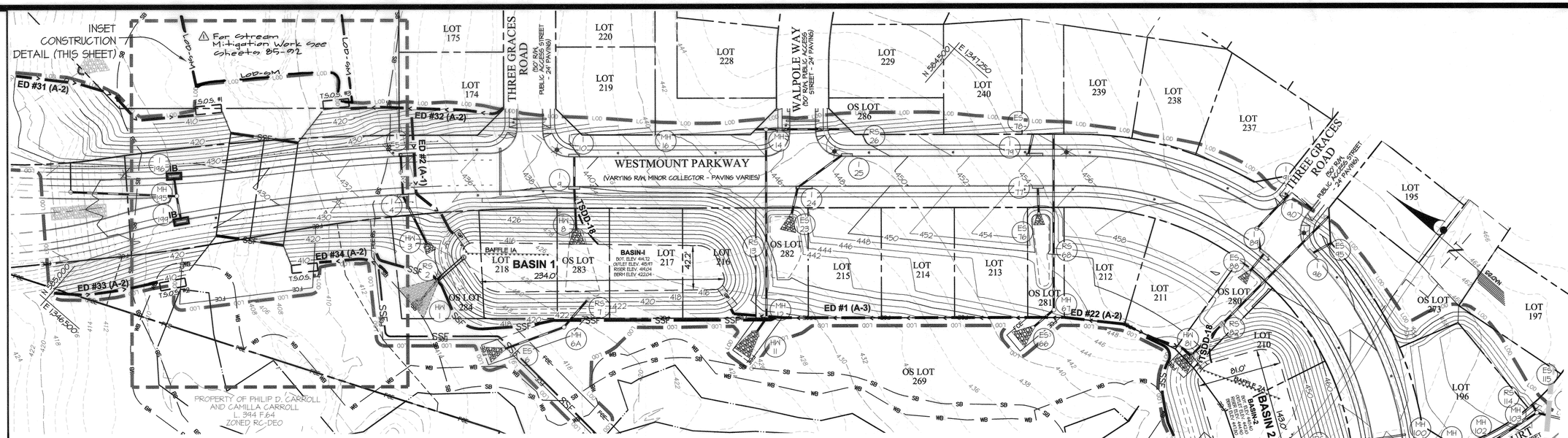
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

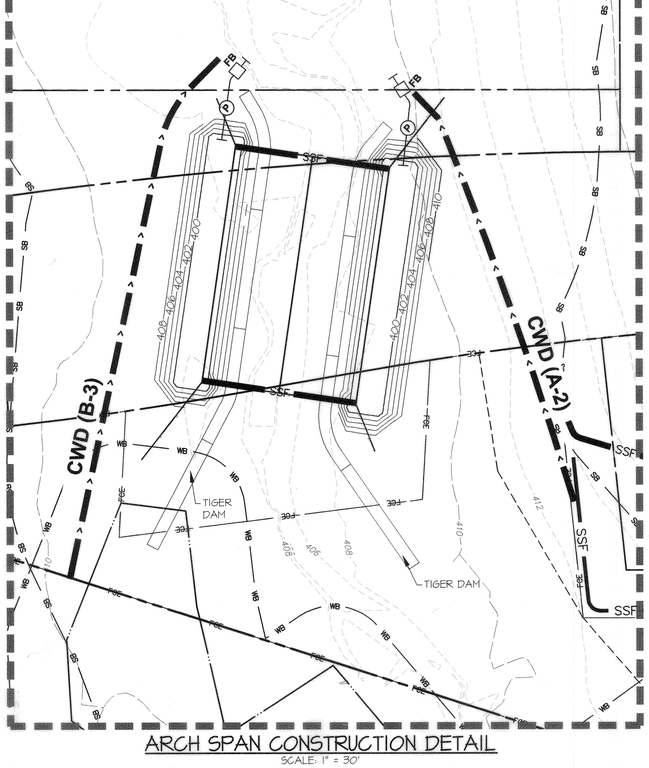
Chief, Bureau of Highways — 1/29/2019 — Date

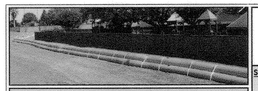
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — 6-27-19 — Date

Chief, Development Engineering Division — 6.24.19 — Date







TIGER DAM™ SYSTEM	Standard Dam
Filled Size	19" x 50 ft
Fold Lengths, Sleeve Length	2' Folds, 4' Sleeves
Rolled-up/Storage Dimensions (including 2 sleeves)	12" x 30"
Single Dry weight	69 lbs.
Single Filled Weight	6100 lbs
Fill Time using Standard Fire Hydrant	4-6 min.
How many Gallons in each Dam	730 gal.
How many sandbags each replaces	500

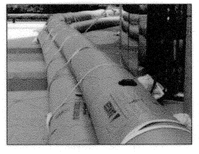
Tiger Dam Configuration Specs

*Values are approximate and can vary depending on the water/air ratio

Single Tiger Dam	Height	1' 6.5" (18.5")
	Base Width	1' 9" (21")
2-1 Configuration	Height	2' 10" (34")
	Base Width	3' 7" (43")
3-2-1 Configuration	Height	4'1 " (49")
	Base Width	5' 9" (69")
4-3-2-1 Configuration	Height	5' 4" (64")
	Base Width	7' 11" (95")

Design Features

- The system has been designed to be rugged, stable and adaptable to a wide variety of situations and climates. The product was originally designed for ice flow in rivers, making it a very durable product.
- It is comprised of a series of engineered, interlocking Tiger Dams that when filled with water form a (temporary) diversion Tiger Dam.
- Can be configured in a wide variety of shapes and sizes ranging from a few feet in length to a few miles in length and from 1.5 feet high to 32 feet high.
- Modular and simple to use (like building blocks) . The universal components are easily connected and can be stacked. This avoids wasting valuable time and resources keeping people out of harms way with the most precious commodity during a storm - TIME.
- With speed as a critical component in building an emergency barrier, the system was designed to be deployed rapidly. Depending on the method of filling, each tube (19 inches x 50 feet long) can be filled in as little as 90 seconds.
- Each component (tube weighs approx. 60 lbs. empty) can be handled by one or two people, thus eliminating the need for heavy equipment. When full of water it weighs over 6100 lbs. (3 tons) to help ensure Tiger Dam stability.



- After the flood the equipment is simply drained, cleaned and rolled up for future use.
- With proper care the reusable system (tube/Tiger Dam) is designed to last up to 17 years (its maximum UV rating) or longer if not left in the sun.
- Can be temporarily repaired with duct tape or permanently repaired with an adhesive patch.

NOTES:

1) FOR STORM DRAIN SIZES, SEE SHEETS 21 THRU 23.
2) WHERE LOD IS NOT SHOWN, SEDIMENT CONTROL DEVICE DENOTES LIMIT OF DISTURBANCE.
3) CONTRACTOR MUST TURN ALL SILT FENCE AND SUPER SILT FENCE UPHILL TWO FEET IN ELEVATION EVERY 100 FEET.
4) FOR DUST CONTROL INFORMATION, SEE SHEET 51.
⚠2 5) FOR THE SEQUENCE OF CONSTRUCTION, SEE SHEET 52. and 85.
6) SEDIMENT CONTROLS INTERCEPTED BY THE INSTALLATION OF STORM DRAINS ARE TO BE REPAIRED IMMEDIATELY.
7) TEMPORARY DISTURBANCES TO FOREST CONSERVATION AREAS AS A RESULT OF SEDIMENT CONTROL WILL BE STABILIZED AND PLANTED WHEN THE DEVICES ARE REMOVED.

DISTURBANCE NOTE:
NO MORE THAN 20 ACRES OF GRADING MAY BE OPEN AT "ANY" ONE TIME.

TEMPORARY STONE OUTLE STRUCTURE INFORMATION

STRUCTURE NUMBER	DRAINAGE AREA	VOLUME REQUIRED	DIMENSIONS (L x W x D)	VOLUME REQUIRED
1	0.2 AC.	360 C.F.	20' x 10' x 2'	400 C.F.
2	0.3 AC.	540 C.F.	26' x 13' x 2'	676 C.F.
3	0.5 AC.	900 C.F.	26' x 13' x 3'	1014 C.F.
4	0.4 AC.	720 C.F.	22' x 11' x 3'	726 C.F.

⚠2 THIS PLAN IS FOR SEDIMENT CONTROL PURPOSES ONLY. FOR GRADING MICRO-BIO3, SEE SHEETS 16 THROUGH 18, AND DETAILS ON SHEETS 56 THROUGH 64.

GLW
PLANNING | ENGINEERING | SURVEYING
3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:				
JRD				
DRAWN BY:				
JRD				
CHECKED BY:	2021-03-17	⚠2 ADDED PURPOSE NOTE	HKJ	DEV
DEV	2020-4-22	⚠1 Showed stream mitigation work area. Rev note to indicate where addl. limits can be found with plan set. Legend & address	klp	
	DATE	REVISION	BY	APP'R.

PREPARED FOR:
⚠1
WESTMOUNT DEVELOPMENT CORPORATION
307 International Circle, Suite 130
Hunt Valley, MD 21030
410-488-4480
Attn.: Robert Goodier

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975
EXPIRATION DATE: MAY 26, 2020

1/2/19 CWJ

SEDIMENT CONTROL PLAN - PHASE A

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	35 OF 92

F 17-001

L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PH3)\13013_35-36_SC - Phase A Plan.dwg, 6/24/2019 8:41:45 AM, ESTEBAN\\\GLW-PLOT-PC-1, 1=1, SCALED TO FIT, Standard, By: Esteban

NOTES:

1) FOR STORM DRAIN SIZES, SEE SHEETS 21 THRU 23.
2) WHERE LOD IS NOT SHOWN, SEDIMENT CONTROL DEVICE DENOTES LIMIT OF DISTURBANCE.
3) CONTRACTOR MUST TURN ALL SILT FENCE AND SUPER SILT FENCE UPHILL TWO FEET IN ELEVATION EVERY 100 FEET.
4) FOR DUST CONTROL INFORMATION, SEE SHEET 51.
5) FOR THE SEQUENCE OF CONSTRUCTION, SEE SHEET 52.
6) SEDIMENT CONTROLS INTERCEPTED BY THE INSTALLATION OF STORM DRAINS ARE TO BE REPAIRED IMMEDIATELY.
7) TEMPORARY DISTURBANCES TO FOREST CONSERVATION AREAS AS A RESULT OF SEDIMENT CONTROL WILL BE STABILIZED AND PLANTED WHEN THE DEVICES ARE REMOVED.

DISTURBANCE NOTE:
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SEDIMENT CONTROL LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING TREELINE
- SCE — STABILIZED CONSTRUCTION ENTRANCE
- RRIP — RIP-RAP INFLOW PROTECTION
- EARTH DIKE
- FCE — FOREST CONSERVATION ESMT.
- SSF — PROPOSED SUPER SILT FENCE
- LOD — LIMIT OF DISTURBANCE
- PROPOSED STORM DRAIN
- FP — 100 YEAR FLOODPLAIN
- SB — STREAM BUFFER
- CENTERLINE OF STREAM
- WB — WETLAND BUFFER
- BAFFLE BOARD
- LIMIT OF WETLAND
- WETLAND AREA
- TSSM — TEMPORARY SOIL STABALIZATION MATTING
- AGIP — AT GRADE INLET PROTECTION
- CIP — CURB INLET PROTECTION
- IB — INLET BLOCKING
- CWD — CLEAR WATER DIVERSION
- GP — GABION PROTECTION
- TSDD — TEMPORARY STORM DRAIN DIVERSION
- CWP — CLEAR WATER PIPE THROUGH SUPER SILT FENCE
- T.S.O.S. — TEMPORARY STONE OUTLET STRUCTURE

BAFFLE TABLE			
	BAFFLE	LENGTH	TOP ELEV
BASIN 3	3A	30.8'	446.64
	3B	112.5'	
TRAP 6	6A	31.0'	472.25
	6B	61.0'	

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

BUILDER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HSCD."

M. Jenny Rattin — 1/2/19
SIGNATURE OF DEVELOPER/BUILDER — DATE

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

CLK — 1/2/19
SIGNATURE OF ENGINEER — DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

John R. Robertson — 1/9/19
HOWARD S.C.D. — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

James — 1/29/2019
Chief, Bureau of Highways — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Kent Sheubrooks — 6-27-19
Chief, Division of Land Development — Date

Chad Edmondson — 6.24.19
Chief, Development Engineering Division — Date

2 THIS PLAN IS FOR SEDIMENT CONTROL PURPOSES ONLY. FOR GRADING MICRO-BIOS, SEE SHEETS 16 THROUGH 18, AND DETAILS ON SHEETS 56 THROUGH 64.

GLW
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3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:				
JRD				
DRAWN BY:				
JRD				
CHECKED BY:				
DEV	2021-03-17	2 ADDED PURPOSE NOTE	HCJ	DEV
	DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975
EXPIRATION DATE: MAY 26, 2020

STATE OF MARYLAND — CARROLL HOWARD JOHNSON — No. 12975 — PROFESSIONAL ENGINEER

1/2/19 CLK

SEDIMENT CONTROL PLAN - PHASE A

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	36 OF 92

F 17-001

NOTES:

1) FOR STORM DRAIN SIZES, SEE SHEETS 21 THRU 23.
2) WHERE LOD IS NOT SHOWN, SEDIMENT CONTROL DEVICE DENOTES LIMIT OF DISTURBANCE.
3) CONTRACTOR MUST TURN ALL SILT FENCE AND SUPER SILT FENCE UPHILL TWO FEET IN ELEVATION EVERY 100 FEET.
4) FOR DUST CONTROL INFORMATION, SEE SHEET 51.
5) FOR THE SEQUENCE OF CONSTRUCTION, SEE SHEET 52.
6) SEDIMENT CONTROLS INTERCEPTED BY THE INSTALLATION OF STORM DRAINS ARE TO BE REPAIRED IMMEDIATELY.
7) TEMPORARY DISTURBANCES TO FOREST CONSERVATION AREAS AS A RESULT OF SEDIMENT CONTROL WILL BE STABILIZED AND PLANTED WHEN THE DEVICES ARE REMOVED.

DISTURBANCE NOTE:
NO MORE THAN 20 ACRES OF GRADING MAY BE OPEN AT "ANY" ONE TIME.

SEDIMENT CONTROL LEGEND

400	EXISTING CONTOUR
400	PROPOSED CONTOUR
	EXISTING TREELINE
SCE	STABILIZED CONSTRUCTION ENTRANCE
RRIP	RIP-RAP INFLOW PROTECTION
> > >	EARTH DIKE
FCE	FOREST CONSERVATION ESMT.
SSF	PROPOSED SUPER SILT FENCE
	LIMIT OF DISTURBANCE
	PROPOSED STORM DRAIN
FP	100 YEAR FLOODPLAIN
SB	STREAM BUFFER
	CENTERLINE OF STREAM
WB	WETLAND BUFFER
	BAFFLE BOARD
	LIMIT OF WETLAND
	WETLAND AREA
TSSM	TEMPORARY SOIL STABILIZATION MATTING
AGIP	AT GRADE INLET PROTECTION
CIP	CURB INLET PROTECTION
IB	INLET BLOCKING
CWD	CLEAR WATER DIVERSION
GP	GABION PROTECTION
TSDD	TEMPORARY STORM DRAIN DIVERSION
CWP	CLEAR WATER PIPE THROUGH SUPER SILT FENCE
TGOS	TEMPORARY GABION OUTLET STRUCTURE
T.S.O.S.	TEMPORARY STONE OUTLET STRUCTURE

BAFFLE TABLE

	BAFFLE	LENGTH	TOP ELEV
BASIN 4	4A	76.0'	417.07
TRAP 5	7A	50.0'	432.24
	7B	58.0'	

BUILDER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HSCD."

M. Jenny Rutter — SIGNATURE OF DEVELOPER/BUILDER — 1/2/19 DATE

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

CKF — SIGNATURE OF ENGINEER — 1/2/19 DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

John R Blumson 1/19/18
HOWARD S.C.D. DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — 1/29/2019 Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — 6.27.19 Date

Chief, Development Engineering Division — 6.24.19 Date

GLW
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PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:			
JRD			
DRAWN BY:			
JRD			
CHECKED BY:			
DEV			
DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975
EXPIRATION DATE: MAY 26, 2020

STATE OF MARYLAND — CHRISTOPHER K. FOSTER — REG. NO. 12975 — PROFESSIONAL ENGINEER

1/2/19 C

SEDIMENT CONTROL PLAN - PHASE B

WESTMOUNT - PHASE 3

LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F

A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	37 OF 92

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

MATCHLINE FOR CONTINUATION SEE SHEET 38

MATCHLINE FOR CONTINUATION SEE SHEET 38

F 17-001

L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PH3)\13013_37-38_SC - Phase B Plan.dwg,

SEDIMENT CONTROL LEGEND

- 400 — EXISTING CONTOUR
- 400 — PROPOSED CONTOUR
- EXISTING TREELINE
- SCE — STABILIZED CONSTRUCTION ENTRANCE
- RRIP — RIP-RAP INFLOW PROTECTION
- EARTH DIKE
- FCE — FOREST CONSERVATION ESMT.
- SSF — PROPOSED SUPER SILT FENCE
- LIMIT OF DISTURBANCE
- PROPOSED STORM DRAIN
- FP — 100 YEAR FLOODPLAIN
- SB — STREAM BUFFER
- CENTERLINE OF STREAM
- WB — WETLAND BUFFER
- BAFFLE BOARD
- LIMIT OF WETLAND
- WETLAND AREA
- TSSM — TEMPORARY SOIL STABALIZATION MATTING
- AGIP — AT GRADE INLET PROTECTION
- CIP — CURB INLET PROTECTION
- IB — INLET BLOCKING
- CWD — CLEAR WATER DIVERSION
- GP — GABION PROTECTION
- TS — TEMPORARY SWALE
- TSDD — TEMPORARY STORM DRAIN DIVERSION
- CWP — CLEAR WATER PIPE THROUGH SUPER SILT FENCE
- TGOS — TEMPORARY GABION OUTLET STRUCTURE
- T.S.O.S. — TEMPORARY STONE OUTLET STRUCTURE

DISTURBANCE NOTE:
NO MORE THAN 20 ACRES OF GRADING MAY BE OPEN AT "ANY" ONE TIME.

NOTES:

1) FOR STORM DRAIN SIZES, SEE SHEETS 21 THRU 23.
2) WHERE LOD IS NOT SHOWN, SEDIMENT CONTROL DEVICE DENOTES LIMIT OF DISTURBANCE.
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BAFFLE TABLE			
	BAFFLE	LENGTH	TOP ELEV
TRAP 7	7A	45.0'	488.19
	7B	34.0'	

BUILDER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HSCD."

M. Jerry Rutter — 1/2/19
SIGNATURE OF DEVELOPER/BUILDER — DATE

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

C K G — 1/2/19
SIGNATURE OF ENGINEER — DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

John R. Robertson — 1/9/18
HOWARD S.C.D. — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

1/29/2019
Chief, Bureau of Highways — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Kent Sheubrooks — 6-27-19
Chief, Division of Land Development — Date

Chad Edmondson — 6-24-19
Chief, Development Engineering Division — Date

MATCHLINE FOR CONTINUATION SEE SHEET 37

MATCHLINE FOR CONTINUATION SEE SHEET 37

MATCHLINE FOR CONTINUATION SEE THIS SHEET

MATCHLINE FOR CONTINUATION SEE THIS SHEET

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

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PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:	DATE	REVISION	BY	APP'R.
JRD				
DRAWN BY: JRD				
CHECKED BY: DEV				

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975 EXPIRATION DATE: MAY 26, 2020.

STATE OF MARYLAND — CHRISTOPHER K. GIAMBA — PROFESSIONAL ENGINEER

1/2/19 C K G
DATE

SEDIMENT CONTROL PLAN - PHASE B

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	38 OF 71

F 17-001

L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PH3)\13013_37-38_SC - Phase B Plan.dwg, 1/2/2019 3:37:38 PM, Jerry Rutter

NOTES:

1) FOR STORM DRAIN SIZES, SEE SHEETS 21 THRU 23.
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BAFFLE TABLE			
	BAFFLE	LENGTH	TOP ELEV
BASIN 8	8A	24.0'	462.55
	8B	102.0'	

DISTURBANCE NOTE:
NO MORE THAN 20 ACRES OF GRADING MAY BE OPEN AT "ANY" ONE TIME.

SEDIMENT CONTROL LEGEND

- 400 — EXISTING CONTOUR
- 400 — PROPOSED CONTOUR
- EXISTING TREELINE
- SCE — STABILIZED CONSTRUCTION ENTRANCE
- RRIP — RIP-RAP INFLOW PROTECTION
- EARTH DIKE
- FCE — FOREST CONSERVATION ESMT.
- SSF — PROPOSED SUPER SILT FENCE
- LIMIT OF DISTURBANCE
- PROPOSED STORM DRAIN
- FP — 100 YEAR FLOODPLAIN
- SB — STREAM BUFFER
- CENTERLINE OF STREAM
- WB — WETLAND BUFFER
- LIMIT OF WETLAND
- WETLAND AREA
- AGIP — AT GRADE INLET PROTECTION
- CIP — CURB INLET PROTECTION
- CWD — CLEAR WATER DIVERSION
- GP — GABION PROTECTION
- CWP — CLEAR WATER PIPE THROUGH SUPER SILT FENCE
- T.G.O.S. — TEMPORARY GABION OUTLET STRUCTURE

NON-BUILDABLE BULK PARCEL 'E'

MATCHLINE FOR CONTINUATION SEE SHEET 40

WESTMOUNT PARKWAY (50' R/W, PUBLIC ACCESS STREET - 28' PAVING)

TEMPLETON LANE (50' R/W, PUBLIC ACCESS STREET - 24' PAVING)

FINDLEY LANE (50' R/W, PUBLIC ACCESS STREET - 24' PAVING)

LOT 254, LOT 253, LOT 252, LOT 251, LOT 250, LOT 249, LOT 266, LOT 265, LOT 264, LOT 263

BASIN #8 — BOTTOM ELEV. 454.00, TOP ELEV. 462.00, BOTTOM AREA 1,000 SF, TOP AREA 2,000 SF, VOLUME 3,000 CF

BAFFLE 8A — 84.5'; BAFFLE 8B — 102'

ED #17 (B-3), ED #18 (B-3), ED #19 (B-3), ED #20 (A-2), ED #21 (A-2), ED #22 (A-2), ED #23 (A-2), ED #24 (A-2), ED #25 (A-2), ED #26 (A-2), ED #27 (A-2), ED #28 (A-2), ED #29 (A-2), ED #30 (A-2), ED #11 (A-2)

CWD #24 (A-2), CWD #25 (A-2), CWD #26 (A-2), CWD #27 (A-2), CWD #28 (A-2)

TRAP #7, TRAP #13, TSDD-18, PDS #11 (TYPE 1)

TSSM, TS A-1, SSF, SIP

PROPERTY OF PHILIP D. CARROLL AND CAMILLA CARROLL L. 3914 F. 64 ZONED RC-DEO

PROPOSED STOCKPILE AREA

CWD #24 (A-2) CARROLL-ZIEGLER PROPERTY PLAT No. 19782 ZONED RC-DEO

N 583250 E 1346600; N 583250 E 1345750; N 582500 E 1347100

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6-24-19

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SCD. — DATE 1/9/18

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER — DATE 1/2/19

BUILDER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HSCD."

SIGNATURE OF DEVELOPER/BUILDER — DATE 1/2/19

GLW PLANNING | ENGINEERING | SURVEYING
3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:	DATE	REVISION	BY	APP'R.
JRD				
DRAWN BY: JRD				
CHECKED BY: DEV				

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12970, EXPIRATION DATE: MAY 26, 2020.

STATE OF MARYLAND — CHARLES RAYMOND CHRISTOPHER — No. 12970 — PROFESSIONAL ENGINEER

1/2/19

SEDIMENT CONTROL PLAN - PHASE C

WESTMOUNT - PHASE 3

LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F

A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	39 OF 92

F 17-001

L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PH3)\13013_39-40_SD - Phase C Plan.dwg, 1/2/2019 2:19:29 PM, Brian Bowers, 1:1

NOTES:

1) FOR STORM DRAIN SIZES, SEE SHEETS 21 THRU 23.
2) WHERE LOD IS NOT SHOWN, SEDIMENT CONTROL DEVICE DENOTES LIMIT OF DISTURBANCE.
3) CONTRACTOR MUST TURN ALL SILT FENCE AND SUPER SILT FENCE UPHILL TWO FEET IN ELEVATION EVERY 100 FEET.
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7) TEMPORARY DISTURBANCES TO FOREST CONSERVATION AREAS AS A RESULT OF SEDIMENT CONTROL WILL BE STABILIZED AND PLANTED WHEN THE DEVICES ARE REMOVED.

DISTURBANCE NOTE:
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BAFFLE TABLE			
	BAFFLE	LENGTH	TOP ELEV.
TRAP 12	1A	42.0'	434.015
	1B	42.0'	

SEDIMENT CONTROL LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING TREELINE
- SCE — STABILIZED CONSTRUCTION ENTRANCE
- RRIP — RIP-RAP INFLOW PROTECTION
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- CENTERLINE OF STREAM
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- LIMIT OF WETLAND
- WETLAND AREA
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- CIP — CURB INLET PROTECTION
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- GP — GABION PROTECTION
- CWP — CLEAR WATER PIPE THROUGH SUPER SILT FENCE

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

BUILDER'S CERTIFICATE

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M. Jerry Rutter — 1/2/19
SIGNATURE OF DEVELOPER/BUILDER — DATE

ENGINEER'S CERTIFICATE

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CKM — 1/2/19
SIGNATURE OF ENGINEER — DATE

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John L. Robertson — 1/9/19
HOWARD S.C.D.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — 1/29/2019 Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — 6.27.19 Date

Chief, Development Engineering Division — 6.24.19 Date

GLW
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DESIGNED BY:	DATE	REVISION	BY	APP'R.
JRD				
DRAWN BY: JRD				
CHECKED BY: DEV				

PREPARED FOR:
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3500 MANOR LANE
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1/2/19

STATE OF MARYLAND — CARLTON KENNETH MORRIS — No. 12975 — REGISTERED PROFESSIONAL ENGINEER

SEDIMENT CONTROL PLAN - PHASE C

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	40 OF 72

F 17-001

L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PH3)\13013_39-40_SC - Phase C Plan.dwg, 1/2/2019 3:30:37 PM, JRD

NOTES:

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SEDIMENT CONTROL LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING TREELINE
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- RRIP — RIP-RAP INFLOW PROTECTION
- EARTH DIKE
- FCE — FOREST CONSERVATION ESMT.
- SSF — PROPOSED SUPER SILT FENCE
- LOD — LIMIT OF DISTURBANCE
- PROPOSED STORM DRAIN
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SIGNATURE OF DEVELOPER/BUILDER — DATE 1/2/19

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER — DATE 1/2/19

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD S.C.D. — DATE 1/9/18

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.24.19

DISTURBANCE NOTE: NO MORE THAN 20 ACRES OF GRADING MAY BE OPEN AT "ANY" ONE TIME.

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

BAFFLE TABLE			
	BAFFLE	LENGTH	TOP ELEV
TRAP 9	9A	28.0'	461.29
TRAP 10	10A	55.0'	436.95
BASIN 11	11A	109.0'	442.60

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PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:				
JRD				
DRAWN BY: JRD				
CHECKED BY: DEV	2021-03-17	2 REVISED TRAP 10	HKJ	DEV
	DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975 EXPIRATION DATE: MAY 26, 2020

STATE OF MARYLAND — CHRISTOPHER KENNETH JOHNSON — NO. 12975 — PROFESSIONAL ENGINEER

1/2/19

SEDIMENT CONTROL PLAN - PHASE D

WESTMOUNT - PHASE 3

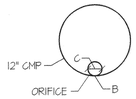
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F

A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

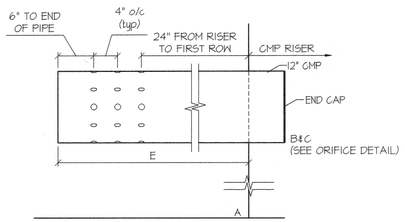
ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	41 OF 92

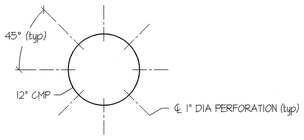
F 17-001



DETAIL - ORIFICE
SCALE: 1" = 1'



DETAIL - DRAWDOWN DEVICE
SCALE: 1" = 1'



DETAIL - PERFORATION PATTERN
SCALE: 1" = 1'

DIMENSION		BASIN 1	BASIN 2
A	BASIN BOTTOM	414.72	440.40
B	ORIFICE INV.	415.97	442.10
C	ORIFICE DIA.	1⅜"	2½"
D	No. OF ROWS	1	3
E	LENGTH OF 6" CMP	36"	36"

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

BUILDER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HSCD."

SIGNATURE OF DEVELOPER/BUILDER — DATE: 1/2/19

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SIGNATURE OF ENGINEER — DATE: 1/2/19

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HOWARD SCD — DATE: 1/9/18

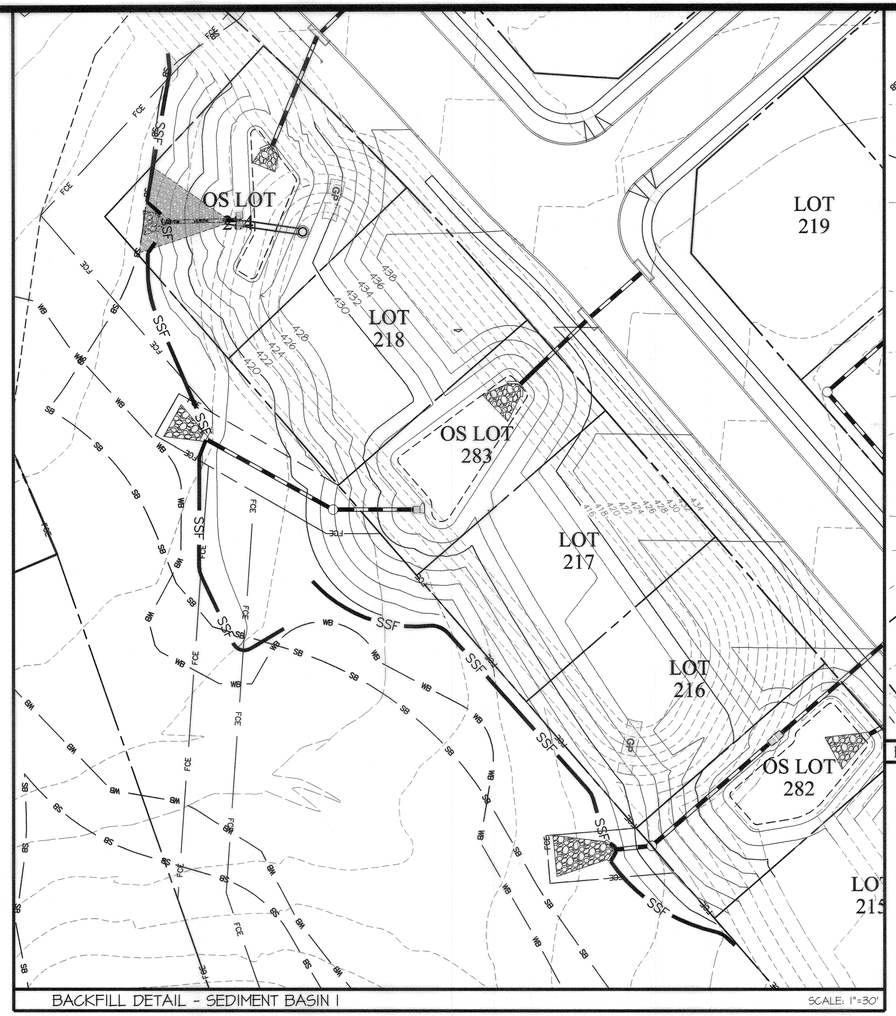
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date: 1/29/2019

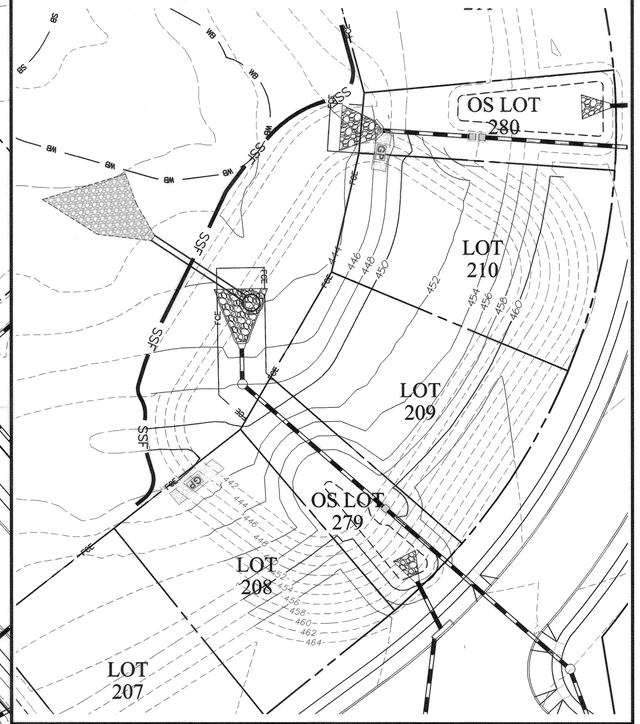
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date: 6-27-19

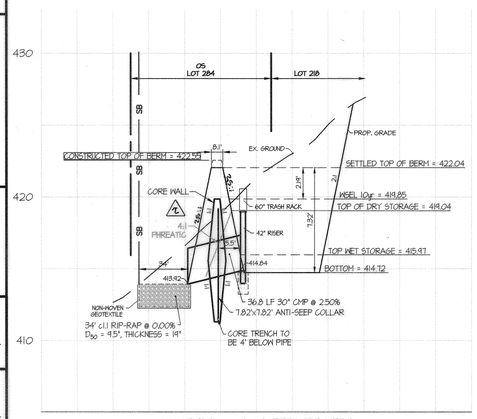
Chief, Development Engineering Division — Date: 6.24.19



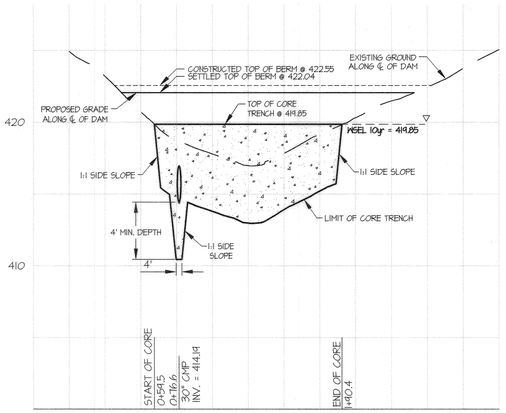
BACKFILL DETAIL - SEDIMENT BASIN 1 — SCALE: 1"=30'



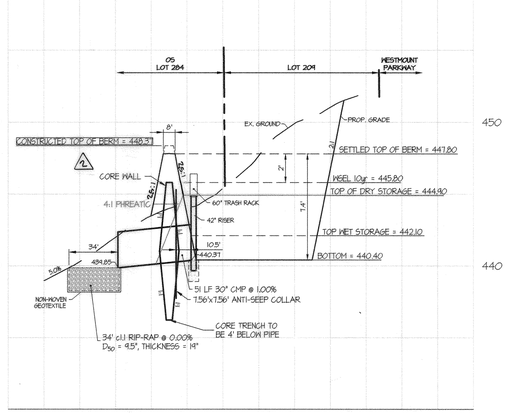
BACKFILL DETAIL - SEDIMENT BASIN 2 — SCALE: 1"=30'



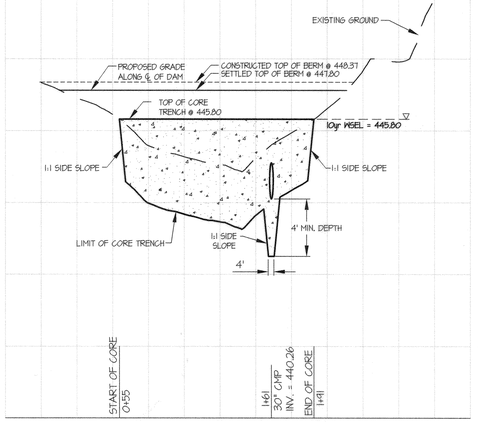
PROFILE - SEDIMENT BASIN 1
SCALE: 1" = 50' HOR.
1" = 5' VER.



BERM PROFILE - SEDIMENT BASIN 1
SCALE: 1" = 50' HOR.
1" = 5' VER.



PROFILE - SEDIMENT BASIN 2
SCALE: 1" = 50' HOR.
1" = 5' VER.



BERM PROFILE - SEDIMENT BASIN 2
SCALE: 1" = 50' HOR.
1" = 5' VER.

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PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:				
ANL				
DRAWN BY:				
LAG				
CHECKED BY:				
DEV	2018-09-17	Revise the side slopes to 2.5:1	WGJ	EBV
	DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

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1/2/19

STATE OF MARYLAND — CHRISTOPHER L. GLW — REG. NO. 12975 — PROFESSIONAL ENGINEER

SEDIMENT BASIN BACKFILL PLAN

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	42 OF 52

F 17-001

DIMENSION		BASIN 3	BASIN 4
A	BASIN BOTTOM	443.85	413.85
B	ORIFICE INV.	445.05	415.75
C	ORIFICE DIA.	1½"	1½"
D	No. OF ROWS	2	2
E	LENGTH OF 6" CMP	36"	36"

BUILDER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HSCD."

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HOWARD S.C.D. — DATE 1/9/18

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

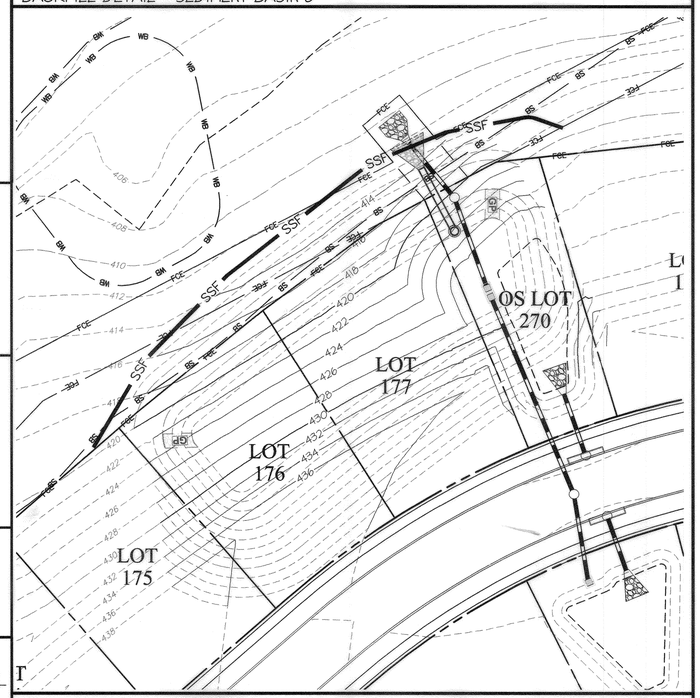
Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

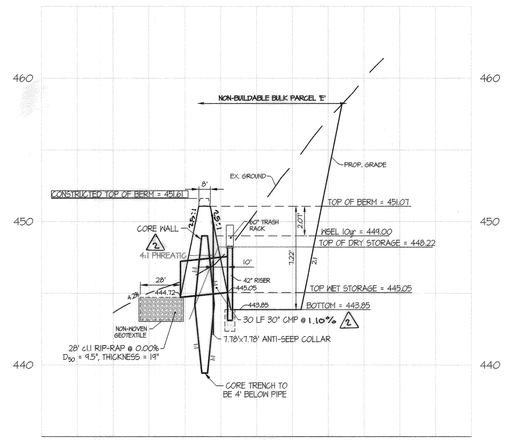
Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.24.19

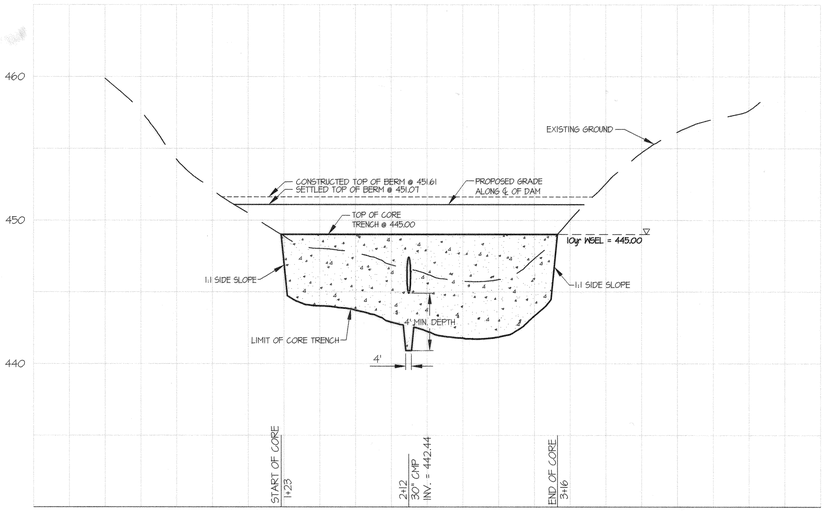
BACKFILL DETAIL - SEDIMENT BASIN 3 — SCALE: 1"=30'



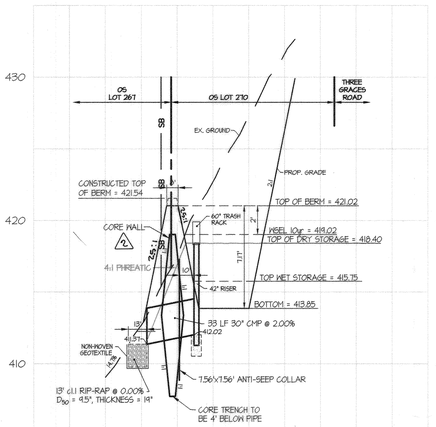
BACKFILL DETAIL - SEDIMENT BASIN 4 — SCALE: 1"=30'



PROFILE - SEDIMENT BASIN 3
SCALE: 1" = 50' HOR.
1" = 5' VER.



BERM PROFILE - SEDIMENT BASIN 3
SCALE: 1" = 50' HOR.
1" = 5' VER.



PROFILE - SEDIMENT BASIN 4
SCALE: 1" = 50' HOR.
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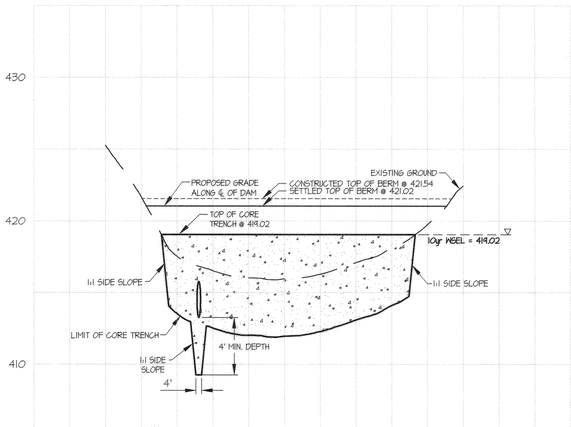

BERM PROFILE - SEDIMENT BASIN 4
SCALE: 1" = 50' HOR.
1" = 5' VER.

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

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DESIGNED BY:				
ANL				
DRAWN BY:				
LAG				
CHECKED BY:				
DEV	2021-03-17	⚠ Revised side slopes to 2.5:1 and pipe slope at Basin #3	WBJ	DEV
	DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

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1/2/19

SEDIMENT BASIN BACKFILL PLAN

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294
AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	43 OF 72

F 17-001

L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PH3)\13013_43-45_SC TRAP INFORMATION.dwg, 1/2/2019 2:47:52 PM, LAURA GRIFFITH, 1:1

DIMENSION		BASIN 8	BASIN 11
A	BASIN BOTTOM	454.65	439.60
B	ORIFICE INV.	460.95	441.00
C	ORIFICE DIA.	2⅞"	1½"
D	No. OF ROWS	3	2
E	LENGTH OF 6" CMP	36"	36"

BUILDER'S CERTIFICATE

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M. Gregg Ruth — 1/2/19
SIGNATURE OF DEVELOPER/BUILDER — DATE

ENGINEER'S CERTIFICATE

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C K — 1/2/19
SIGNATURE OF ENGINEER — DATE

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John R Robertson — 11/9/18
HOWARD SCD — DATE

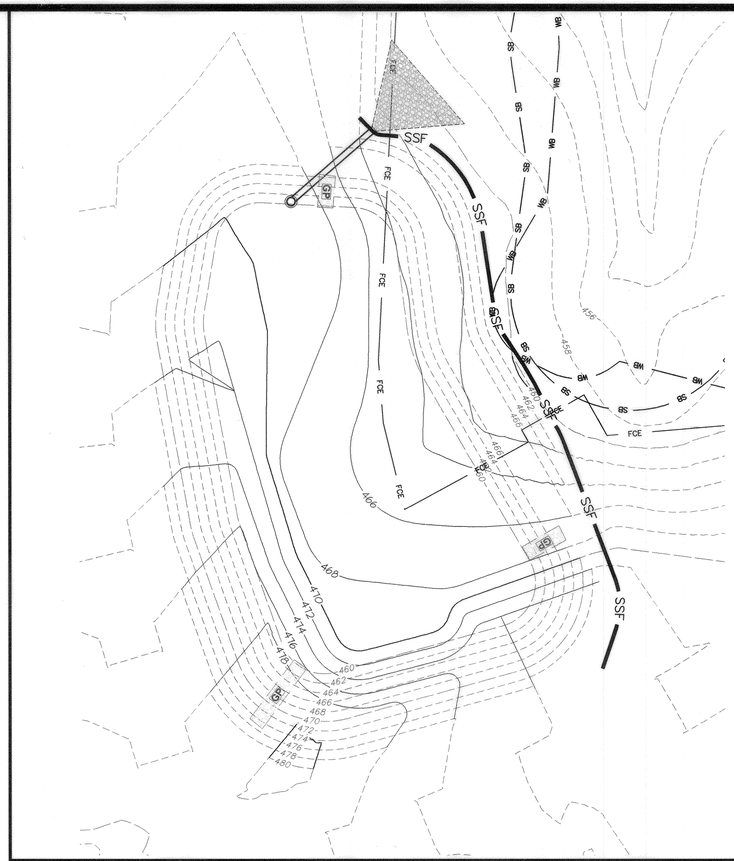
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — 1/29/2019 Date

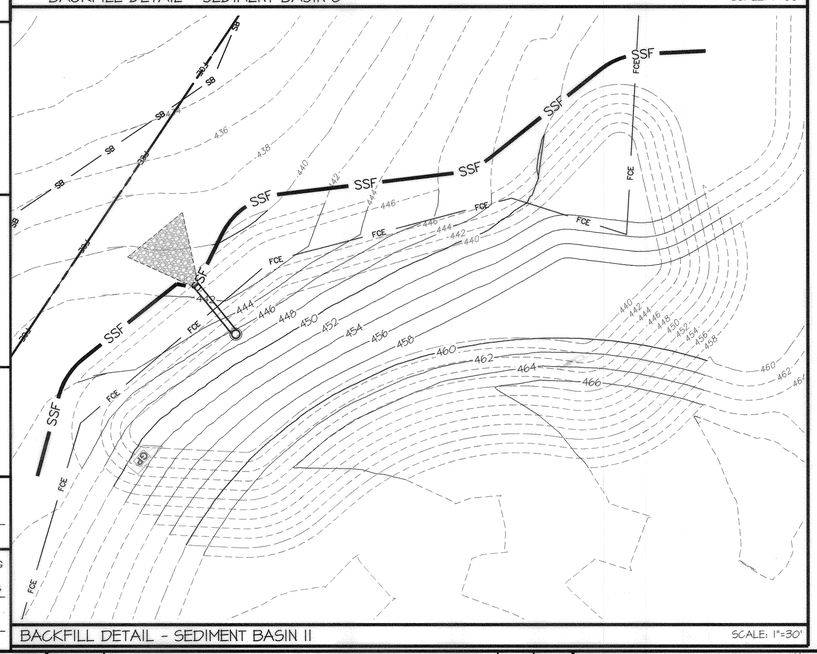
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — 6-27-19 Date

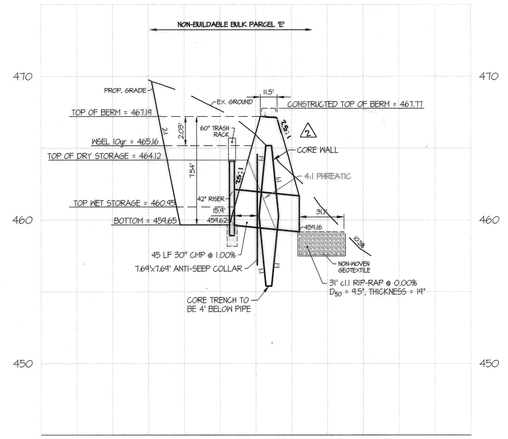
Chief, Development Engineering Division — 6.24.19 Date



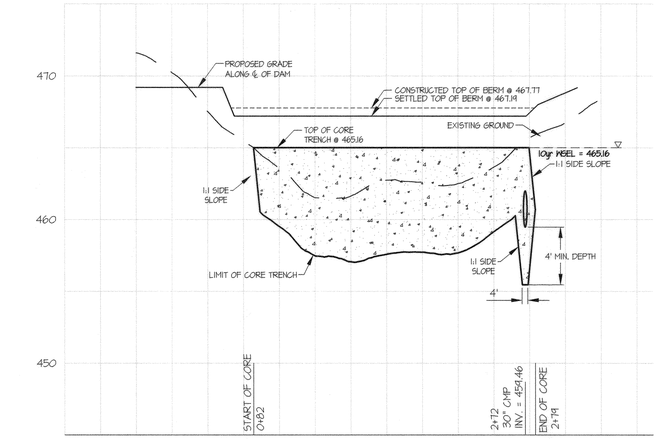
BACKFILL DETAIL - SEDIMENT BASIN 8 — SCALE: 1"=30'



BACKFILL DETAIL - SEDIMENT BASIN 11 — SCALE: 1"=30'



PROFILE - SEDIMENT BASIN 8
SCALE: 1" = 50' HOR.
1" = 5' VER.



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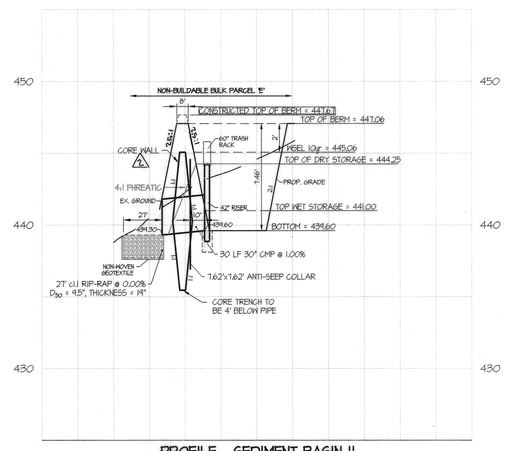
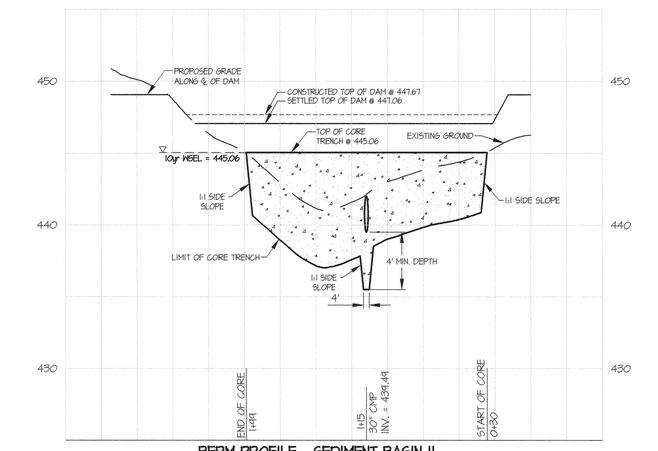


PROFILE - SEDIMENT BASIN 11
SCALE: 1" = 50' HOR.
1" = 5' VER.



BERM PROFILE - SEDIMENT BASIN 11
SCALE: 1" = 50' HOR.
1" = 5' VER.

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

GLW
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PHONE: 301-421-4024 | BALT: 410-880-1620 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:				
ANL				
DRAWN BY:				
LAG				
CHECKED BY:				
DEV	2021-04-19	Revised side slopes to 2.5:1 ⚠	WBJ	DEV
	DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

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12/19

STATE OF MARYLAND — CONDON KENNETH GUTSCHICK — NO. 12975 — PROFESSIONAL ENGINEER

SEDIMENT BASIN BACKFILL PLAN

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294
AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	44 OF 72

F 17-001

L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PH3)\13013_43-45_SC TRAP INFORMATION.dwg, PLOTTED BY: Jennifer R. Dicks, LAST SAVED: 12/20/2018 9:41 AM, PLOTTED: 12/20/2018 9:45 AM

SEDIMENT CONTROL DESIGN INFORMATION	UNITS	BASIN 1	BASIN 2	BASIN 3	BASIN 4	BASIN 8	BASIN 11
TOTAL INITIAL AREA DRAINING TO BASIN	ACRES	5.46	10.62	6.76	6.11	12.51	6.56
TOTAL FINAL AREA DRAINING TO BASIN	ACRES	1.56	1.85	1.64	4.04	12.08	1.65
REQUIRED TOTAL STORAGE VOLUME	CF	50,828	57,034	51,220	30,336	81,482	50,150
REQUIRED WET STORAGE VOLUME	CF	13,603	19,116	13,749	11,004	22,628	13,764
REQUIRED DRY STORAGE VOLUME	CF	37,225	37,918	37,472	19,332	58,854	36,881
BASIN BOTTOM ELEVATION	FT	414.72	440.40	443.85	413.85	454.65	434.60
RISER CREST (DRY STORAGE) ELEVATION	FT	419.04	444.90	448.22	418.40	464.15	444.25
PROVIDED TOTAL STORAGE VOLUME	CF	56,612	60,446	54,196	32,607	90,829	58,052
WET STORAGE ELEVATION (OUTLET ELEVATION)	FT	415.97	442.10	445.05	415.75	460.45	441.00
PROVIDED WET STORAGE VOLUME	CF	13,955	20,218	14,013	11,441	23,556	14,833
PROVIDED DRY STORAGE VOLUME	CF; FT	42,657 @ 419.09	40,168 @ 444.98	45,183 @ 448.27	21,117 @ 418.44	67,273 @ 464.20	43,219 @ 444.30
CLEANOUT ELEVATION	FT	415.34	441.25	444.45	414.80	460.30	440.30
DISTANCE FROM RISER CREST ELEV. TO CLEAN OUT ELEV.	FT	3.70	3.63	3.77	3.54	3.84	3.90
Q_{10} (BEFORE DEVELOPMENT)	CFS	4.85	9.5	5.51	5.6	11.17	7.68
Q_{10} (AFTER DEVELOPMENT) (UNMANAGED)	CFS	41.88	43.51	42.34	22.38	66.95	42.38
MINIMUM BASIN SURFACE AREA	ACRES	0.15	0.15	0.15	0.08	0.23	0.15
DESIGN Q_{10} FOR BARREL	CFS; FT	22.45 @ 418.85	25.45 @ 445.80	20.70 @ 449.00	14.65 @ 419.02	31.44 @ 465.16	21.91 @ 445.06
BARREL HEAD, H; BARREL LENGTH, L	FT; FT	4.68; 31	4.70; 51	3.03; 30	6.40; 33	4.61; 31	4.51; 30
BARREL DIAMETER; Q_{BS}	IN; CFS	30; 41.3	30; 44.5	30; 34.3	30; 56.6	30; 48.4	30; 48.3
RISER DIAMETER; RISER HEIGHT; RISER HEAD	IN; FT; FT	42; 4.20; 0.81	42; 4.53; 0.90	42; 4.31; 0.78	42; 6.31; 0.63	42; 4.52; 1.05	42; 4.65; 0.81
TRASH RACK DIAMETER; TRASH RACK HEIGHT	IN; IN	60; 27	60; 27	60; 27	60; 27	60; 27	60; 27
EMERGENCY SPILLWAY CAPACITY Q_{ES}	CFS	N/A	N/A	N/A	N/A	N/A	N/A
WIDTH; Hp	FT; FT	N/A	N/A	N/A	N/A	N/A	N/A
EXIT CHANNEL SLOPE	%	N/A	N/A	N/A	N/A	N/A	N/A
EMERGENCY SPILLWAY CREST	FT	N/A	N/A	N/A	N/A	N/A	N/A
DESIGN HIGH WATER	FT	419.85	445.80	449.00	419.02	465.16	445.06
SETTLED TOP OF EMBANKMENT ELEVATION	FT	422.04	447.80	451.01	421.02	467.19	447.06
Y; Z; PIPE SLOPE; L_S	FT; H:V; %; FT	4.20; 2:1; 2.50; 35.5	5.40; 2:1; 1.00; 33.8	4.37; 2:1; 2.71; 35.2	6.37; 2:1; 2.00; 33.1	4.52; 2:1; 1.00; 34.6	4.65; 2:1; 1.00; 34.1
USE 1 SQUARE COLLAR; PROJECTION	FT; FT	1.82; 2.66	1.56; 2.53	1.78; 2.64	1.54; 2.52	1.64; 2.60	1.62; 2.56
$Q_{d=A}$	CFS	0.38	0.53	0.38	0.31	0.63	0.38
CALCULATED A_O	SF	0.055	0.081	0.055	0.048	0.090	0.054
DESIGN A_O (USED FOR DRAIN DOWN DEVICE)	SF	0.010	0.028	0.012	0.012	0.025	0.012
CALCULATED d_O	FT	3.2	3.9	3.2	3.0	4.1	3.2
MAXIMUM DIAMETER FROM TABLE 6.10	IN	4	6	4	4	6	4
DESIGN d_O	IN	1.375	2.25	1.5	1.5	2.125	1.5
DRAIN-DOWN DEVICE PIPE DIAMETER	IN	12	12	12	12	12	12
MINIMUM A_f	SF	0.04	0.11	0.05	0.05	0.10	0.05
PERFORATION DIAMETER, AREA	IN; SF	1; 0.0055	1; 0.0055	1; 0.0055	1; 0.0055	1; 0.0055	1; 0.0055
MINIMUM NUMBER OF PERFORATIONS	---	8	20	10	10	20	10
NUMBER OF LONGITUDINAL ROWS	---	1	3	2	2	3	2
PERFORATED PIPE LENGTH	FT	3	3	3	3	3	3
ACTUAL A_f (PERFORATION AREA x PERFORATIONS PROVIDED)	SF	0.04	0.13	0.09	0.09	0.12	0.09
A = SURFACE AREA AT WET STORAGE ELEVATION (>=#14)	SF	12,151	12,651	11,996	6,767	18,645	11,271
EFFECTIVE WIDTH, W_e	FT	78	80	77	58	97	75
FLOW LENGTH FROM INFLOW POINT TO OUTLET	FT	10, 244	75, 67	62, 146	13, 138	11, 173, 191	60
W_e x 2	FT	156	160	154	116	194	150
EFFECTIVE FLOW LENGTH, L_e	FT	157, 244	160, 160	154, 154	116, 138	194, 202, 194	151

BUILDER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HSCD."

M. Jeremy Rutter — 1/2/19
SIGNATURE OF DEVELOPER/BUILDER — DATE

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

C K — 1/2/19
SIGNATURE OF ENGINEER — DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD S.C.D. — DATE 1/9/18

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6.27.19

Chief, Development Engineering Division — Date 6.24.19

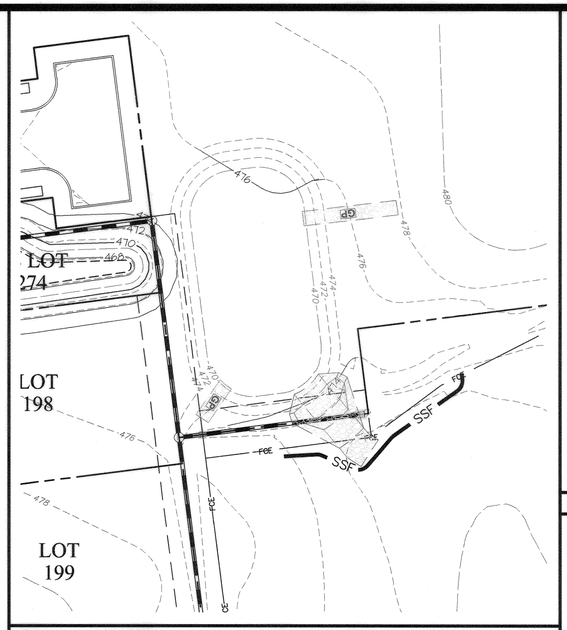
SEDIMENT CONTROL DESIGN INFORMATION	UNITS	TRAP 5	TRAP 6	TRAP 7	TRAP 9	TRAP 10	TRAP 12
DRAINAGE AREA - INITIAL	ACRES	2.13	1.41	2.42	0.62	3.99	2.31
DRAINAGE AREA - INTERIM	ACRES	---	---	---	---	---	---
DRAINAGE AREA - FINAL	ACRES	2.31	3.31	1.73	1.23	3.35	2.70
TOTAL STORAGE REQUIRED	CF	13,963	19,683	11,360	4,413	20,366	15,840
TOTAL STORAGE PROVIDED	CF	14,796	20,888	11,628	4,601	23,914	16,316
WET STORAGE REQUIRED	CF	4,213	5,963	4,355	2,201	7,186	4,851
WET STORAGE PROVIDED	CF	4,379	6,101	4,556	2,323	8,097	5,044
DRY STORAGE REQUIRED	CF	9,690	13,721	7,004	2,201	13,184	10,989
DRY STORAGE PROVIDED	CF	10,417	14,787	7,072	2,278	15,817	11,282
TRAP BOTTOM ELEVATION	FT	429.39	469.50	484.31	458.20	434.00	435.50
TRAP DIMENSIONS	FT x FT	11 x 41	93 x 46	62 x 35	39 x 24	157x70	14 x 40
WEIR CREST (DRY STORAGE) ELEVATION	FT	433.54	473.60	488.41	461.60	438.20	439.80
OUTLET (WET STORAGE) ELEVATION	FT	430.84	470.90	486.21	460.20	435.70	437.10
CLEANOUT ELEVATION	FT	430.14	470.20	485.26	459.20	434.85	436.30
TOP OF EMBANKMENT ELEVATION	FT	434.54	474.60	489.41	462.60	442.20	440.80
SIDE SLOPE	H:V RATIO	2:1	2:1	2:1	2:1	2:1	2:1
TOP OF EMBANKMENT WIDTH	FT	4	4	4	4	4	4
WEIR LENGTH	FT	9.48	13.24	9.68	4.42	15.46	10.80
OUTLET PROTECTION - LENGTH	FT	10	10	10	10	10	10
OUTLET PROTECTION - WIDTH	FT	10	14	10	5	16	11
OUTLET PROTECTION - DEPTH	IN	19	19	19	19	19	19

NOTE:
SEE SHEETS 32-33 FOR SEDIMENT TRAP/BASIN LOCATIONS.
SEE SHEETS 42-45 FOR SEDIMENT TRAP/BASIN BACKFILL PLAN.

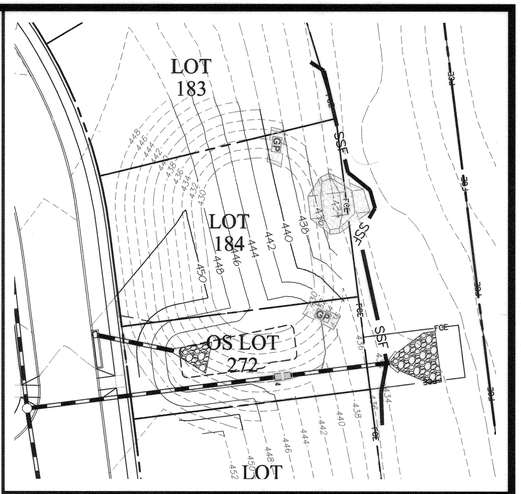
GRAPHIC SCALE

30 0 15 30 60 120

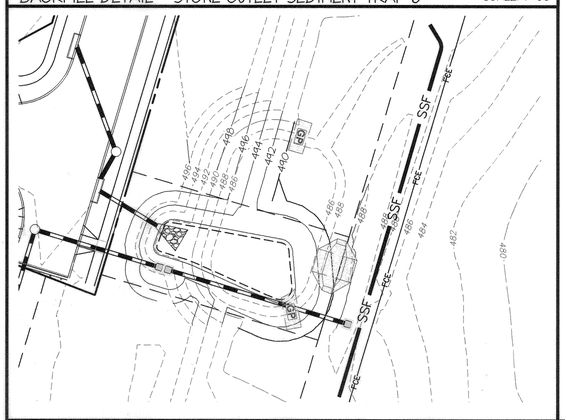
(IN FEET)
1 inch = 30 ft.



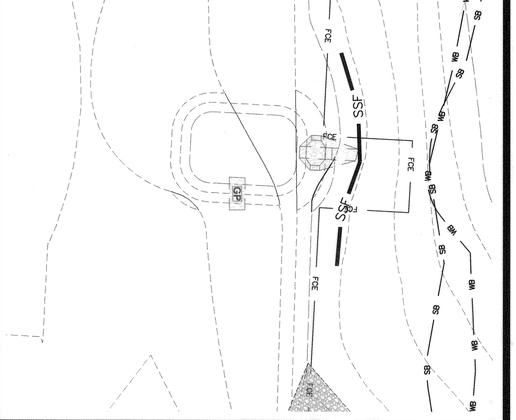
BACKFILL DETAIL - STONE OUTLET SEDIMENT TRAP 6 SCALE: 1"=30'



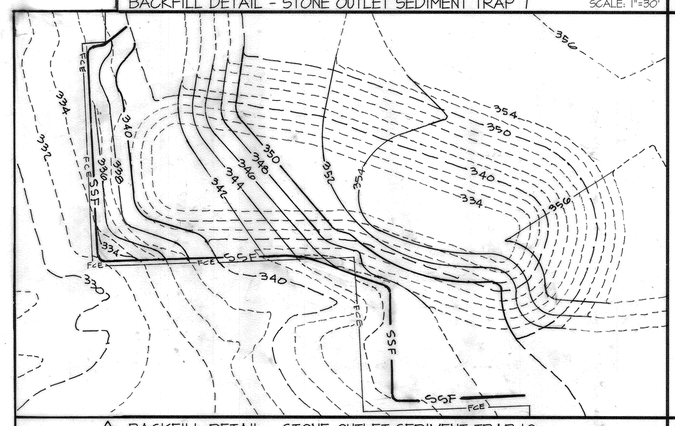
BACKFILL DETAIL - STONE OUTLET SEDIMENT TRAP 5 SCALE: 1"=30'



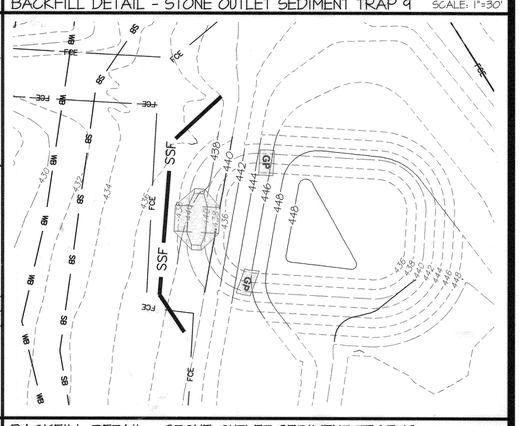
BACKFILL DETAIL - STONE OUTLET SEDIMENT TRAP 7 SCALE: 1"=30'



BACKFILL DETAIL - STONE OUTLET SEDIMENT TRAP 9 SCALE: 1"=30'



⚠2 BACKFILL DETAIL - STONE OUTLET SEDIMENT TRAP 10 SCALE: 1"=30'



BACKFILL DETAIL - STONE OUTLET SEDIMENT TRAP 12 SCALE: 1"=30'

GLW
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3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:				
ANL				
DRAWN BY:				
LAG				
CHECKED BY:				
DEV	2021-03-17	⚠2 Revised Trap 10 Backfill per Grading Changes	MWJ	DEV
	DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975 EXPIRATION DATE: MAY 26, 2020

1/2/19 C K

STATE OF MARYLAND — CHRISTOPHER KNOPP — No. 12975 — REGISTERED PROFESSIONAL ENGINEER

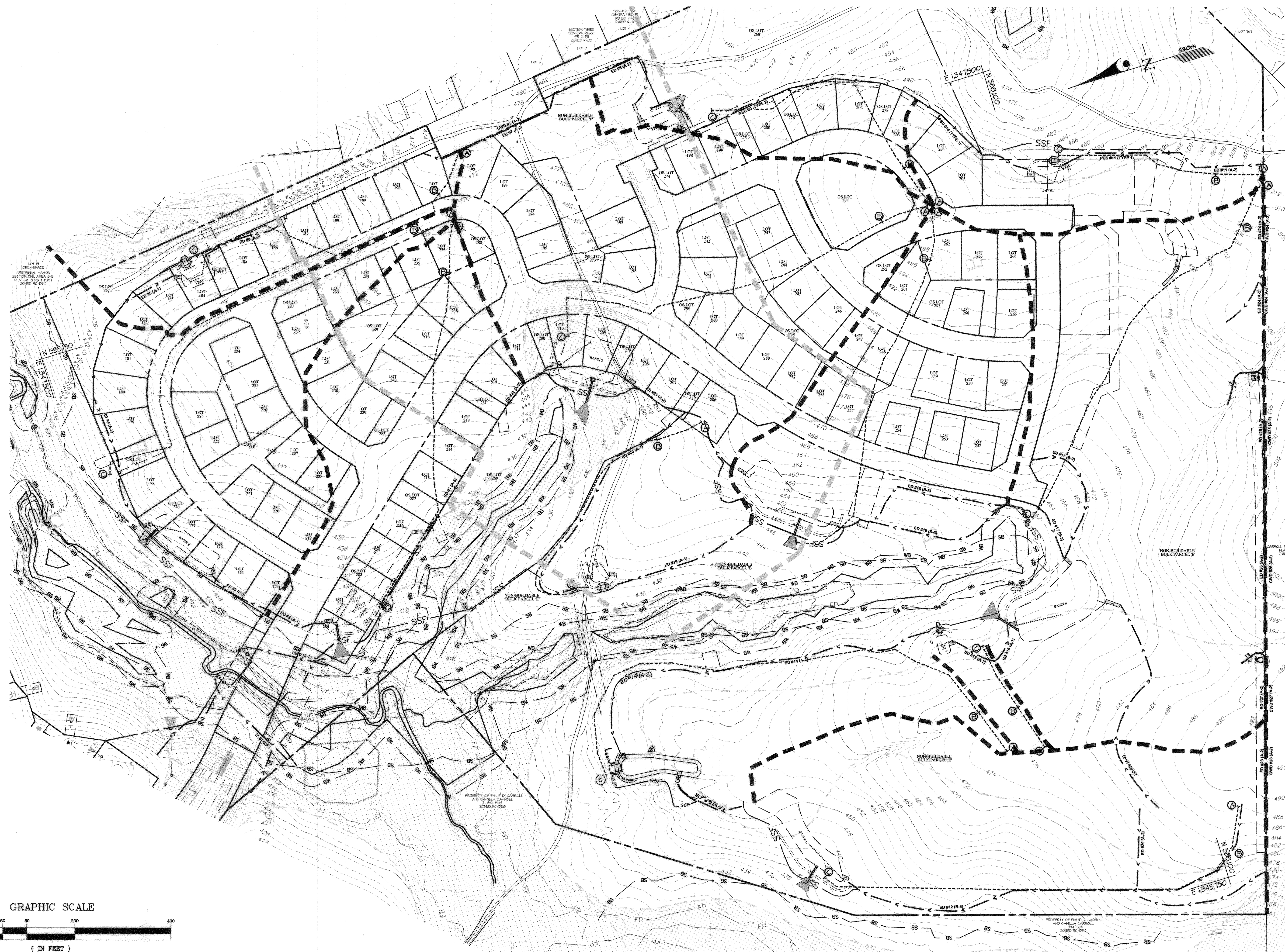
SEDIMENT TRAP BACKFILL PLAN

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	45 OF 92

F 17-001



SEE SHEET 47 FOR SUMMARY
OF DRAINAGE AREAS AND DISCHARGES

LEGEND

B SOILS	DRAINAGE DIVIDE
C SOILS	TC PATH (A) (B)
D SOILS	

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.24.19

GRAPHIC SCALE

50 0 50 50 200 400

(IN FEET)
1 inch = 100 ft.

GLW
PLANNING | ENGINEERING | SURVEYING
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PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY: JRD
DRAWN BY: JRD
CHECKED BY: DEV

DATE	REVISION	BY	APP'R.
2021-03-17	2 REVISED TRAP 10 TO ELIMINATE CONFLICT WITH PHASE 4 (F21-032) IMPROVEMENTS	HKJ	DEV

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975
EXPIRATION DATE: MAY 26, 2020
1/2/19

STATE OF MARYLAND — CARLTON KENNETH GUTSCHICK — NO. 12975 — PROFESSIONAL ENGINEER

TEMPORARY SWM DRAINAGE AREA MAP (PRE-DEVELOPMENT)

WESTMOUNT · PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294
AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=100'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	46 OF 92

F 17-001

L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PH3)\13013_46-47_SC - Temp SWM DAM.dwg,
PLOTTED: 12/28/2018 10:01 AM, LAST SAVED: 10/22/2018 6:04 PM, PLOTTED BY: Jennifer R. Dicks

STORMWATER MANAGEMENT SUMMARY

	BASIN #1		BASIN #2		BASIN #3		BASIN #4		TRAP #5		TRAP #6		TRAP #7		BASIN #8		TRAP #9		TRAP #10		BASIN #11		TRAP #12	
DESIGN CRITERIA ITEM	BEFORE DEV.	AFTER DEV.	BEFORE DEV.	AFTER DEV.	BEFORE DEV.	AFTER DEV.	BEFORE DEV.	AFTER DEV.	BEFORE DEV.	AFTER DEV.	BEFORE DEV.	AFTER DEV.	BEFORE DEV.	AFTER DEV.	BEFORE DEV.	AFTER DEV.	BEFORE DEV.	AFTER DEV.	BEFORE DEV.	AFTER DEV.	BEFORE DEV.	AFTER DEV.	BEFORE DEV.	AFTER DEV.
DRAINAGE AREA	5.46 Ac.	7.56 ac.	10.62 ac.	7.85 ac.	6.76 ac.	7.64 ac.	6.11 ac.	4.04 ac.	2.13 ac.	2.31 ac.	1.91 ac.	3.31 ac.	2.42 ac.	1.73 ac.	12.51 ac.	12.08 ac.	0.62 ac.	1.23 ac.	3.99 ac.	3.35 ac.	6.56 ac.	7.65 ac.	2.31 ac.	2.70 ac.
CURVE NUMBER	55	91	56	91	55	91	55	91	55	91	55	91	55	91	55	91	55	91	55	91	55	91	55	91
TIME OF CONCENTRATION	0.34 Hr.	0.05 Hr.	0.31 Hr.	0.06 Hr.	0.38 Hr.	0.06 Hr.	0.32 Hr.	0.05 Hr.	0.35 Hr.	0.05 Hr.	0.53 Hr.	0.07 Hr.	0.51 Hr.	0.03 Hr.	0.34 Hr.	0.04 Hr.	0.34 Hr.	0.06 Hr.	0.46 Hr.	0.04 Hr.	0.11 Hr.	0.04 Hr.	0.30 Hr.	0.06 Hr.

TEMPORARY SWM SUMMARY

		BEFORE	UNMANAGED	MANAGED
BASIN #1	1 YR	0.09 c.f.s.	18.41 c.f.s.	0.09 c.f.s. @ 411.75
	10 YR	4.85 c.f.s.	41.88 c.f.s.	22.45 c.f.s. @ 414.85
BASIN #2	1 YR	0.24 c.f.s.	19.19 c.f.s.	0.22 c.f.s. @ 444.88
	10 YR	9.50 c.f.s.	43.51 c.f.s.	25.45 c.f.s. @ 445.80
BASIN #3	1 YR	0.11 c.f.s.	18.68 c.f.s.	0.10 c.f.s. @ 447.01
	10 YR	5.51 c.f.s.	42.34 c.f.s.	20.70 c.f.s. @ 444.00
BASIN #4	1 YR	0.10 c.f.s.	9.81 c.f.s.	0.09 c.f.s. @ 418.39
	10 YR	5.60 c.f.s.	22.38 c.f.s.	14.65 c.f.s. @ 419.02
BASIN #8	1 YR	0.21 c.f.s.	24.53 c.f.s.	0.21 c.f.s. @ 464.14
	10 YR	11.11 c.f.s.	66.95 c.f.s.	31.44 c.f.s. @ 465.16
BASIN #11	1 YR	0.11 c.f.s.	18.69 c.f.s.	0.10 c.f.s. @ 444.20
	10 YR	7.68 c.f.s.	42.36 c.f.s.	21.91 c.f.s. @ 445.06

LEGEND

- B SOILS
- C SOILS
- D SOILS
- DRAINAGE DIVIDE
- TC PATH (A) (B)

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.24.19

GRAPHIC SCALE

50 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

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PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:				
JRD				
DRAWN BY:				
JRD				
CHECKED BY:				
DEV	2021-05-17	2 REVISED TRAP 10 TO ELIMINATE CONFLICT WITH PHASE 4 (F21-082) IMPROVEMENTS	HCJ	DEV
	DATE	REVISION	BY	APP'R.

PREPARED FOR:

WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975
EXPIRATION DATE: MAY 26, 2020

1/2/19

STATE OF MARYLAND — CARLTON KENNETH GREEN — 12975 — PROFESSIONAL ENGINEER

TEMPORARY SWM DRAINAGE AREA MAP (POST-DEVELOPMENT)

WESTMOUNT - PHASE 3

LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F

A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=100'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	47 OF 72

F 17-001

L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PHS)\13013_46-47_SC - Temp SWM DAM dwg, 6/24/2019 11:07:37 AM, Brian Dunn, Default

LEGEND

- 400 — EXISTING CONTOUR
- 400 — PROPOSED CONTOUR
- STABILIZED CONSTRUCTION ENTRANCE
- EARTH DIKE
- SF — PROPOSED SILT FENCE
- SSF — PROPOSED SUPER SILT FENCE
- EXISTING TREELINE
- FP — 100 YEAR FLOODPLAIN
- SB — STREAM BUFFER
- CENTERLINE OF STREAM
- WB — WETLAND BUFFER
- LIMIT OF WETLAND
- DRAINAGE DIVIDE

EARTH DIKE SIZING FOR EXISTING CONDITIONS

EARTH DIKE TREATMENT						
EARTH DIKE NO.	AVG. SLOPE	DRAINAGE AREA	TREATMENT	Q2*	V2*	SHEAR STRESS (lb/ft²)
1	5.71%	4.15 AC.	A-3	11.79 CFS	7.14 FPS	0.90
2	1.74%	0.35 AC.	A-1	0.91 CFS	2.54 FPS	0.14
3	1.12%	0.41 AC.	A-1	2.51 CFS	2.54 FPS	0.13
4	3.91%	3.51 AC.	A-2	9.96 CFS	6.41 FPS	0.81
5	1.14%	0.26 AC.	A-1	0.75 CFS	2.18 FPS	0.10
6	6.22%	1.45 AC.	A-2	4.12 CFS	6.24 FPS	0.76
7	2.98%	0.38 AC.	A-2	1.06 CFS	2.42 FPS	0.15
8	3.48%	0.11 AC.	A-2	0.31 CFS	2.54 FPS	0.11
9	3.54%	1.37 AC.	A-2	3.84 CFS	3.98 FPS	0.33
10	1.45%	0.84 AC.	A-1	2.53 CFS	3.02 FPS	0.16
11	4.90%	1.07 AC.	A-2	3.05 CFS	5.02 FPS	0.52
12	4.51%	4.91 AC.	B-3	13.85 CFS	6.21 FPS	0.65
13	4.23%	0.36 AC.	A-2	1.01 CFS	3.66 FPS	0.32
14	2.54%	2.94 AC.	A-2	8.44 CFS	5.61 FPS	0.53
15	1.29%	0.81 AC.	A-1	2.30 CFS	2.61 FPS	0.14
17	1.75%	7.20 AC.	B-2	20.43 CFS	5.58 FPS	0.47
18	3.42%	4.34 AC.	B-3	12.45 CFS	6.21 FPS	0.66
19	2.20%	0.95 AC.	A-1	2.64 CFS	3.52 FPS	0.26
20	2.87%	0.81 AC.	A-1	2.31 CFS	3.80 FPS	0.30
21	2.26%	2.10 AC.	A-2	5.96 CFS	5.10 FPS	0.44
22	3.45%	0.07 AC.	A-2	0.21 CFS	2.18 FPS	0.15
23	8.08%	0.36 AC.	A-2	1.08 CFS	4.81 FPS	0.55
24	2.64%	0.61 AC.	A-2	0.26 CFS	1.90 FPS	0.10
25	1.86%	4.01 AC.	A-2	1.56 CFS	2.81 FPS	0.16
26	2.20%	1.01 AC.	A-2	0.42 CFS	2.17 FPS	0.12
27	1.44%	0.46 AC.	A-2	0.18 CFS	1.23 FPS	0.04
28	2.36%	0.15 AC.	A-2	0.06 CFS	1.51 FPS	0.09

*2-YEAR FLOWRATE AND VELOCITY VALUES COMPUTED USING FLOWMASTER™

NOTE: EARTH DIKE 16 HAS BEEN OMITTED INTENTIONALLY

GRAPHIC SCALE

50 0 50 50 200 400

(IN FEET)
1 inch = 100 ft.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.24.19

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3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:				
JRD				
DRAWN BY:				
JRD				
CHECKED BY:				
DEV	2021-03-17	⚠ REVISED TRAP 10 TO ELIMINATE CONFLICT WITH PHASE 4 (F21-032) IMPROVEMENTS.	HKJ	DEV
	DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975 EXPIRATION DATE: MAY 26, 2020.

STATE OF MARYLAND — CLINTON KENNETH DEVER — PROFESSIONAL ENGINEER

1/2/19

EARTHDIKE TREATMENT PLAN - EXISTING CONDITIONS

WESTMOUNT - PHASE 3

LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F

A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=100'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	48 OF 72

F 17-001

L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PH3)\13013_48-49_SC - ED Treatment.dwg, 6/24/2019 2:19:16 PM, jmiller, 1:1

LEGEND

- 400 — EXISTING CONTOUR
- 400 — PROPOSED CONTOUR
- STABILIZED CONSTRUCTION ENTRANCE
- EARTH DIKE
- SF — PROPOSED SILT FENCE
- SSF — PROPOSED SUPER SILT FENCE
- EXISTING TREELINE
- FP — 100 YEAR FLOODPLAIN
- SB — STREAM BUFFER
- CENTERLINE OF STREAM
- WB — WETLAND BUFFER
- LIMIT OF WETLAND
- DRAINAGE DIVIDE

EARTH DIKE SIZING FOR PROPOSED CONDITIONS

EARTH DIKE TREATMENT						
EARTH DIKE NO.	AVG. SLOPE	DRAINAGE AREA	TREATMENT	Q2*	V2*	SHEAR STRESS (lb/ft²)
1	5.71%	5.43 AC.	A-3	15.41 CFS	9.67 FPS	1.44
2	1.74%	0.01 AC.	A-1	0.01 CFS	.099 FPS	0.03
3	1.12%	0.20 AC.	A-1	0.56 CFS	2.24 FPS	0.11
4	3.41%	2.03 AC.	A-2	5.71 CFS	6.54 FPS	0.13
5	1.14%	0.91 AC.	A-1	0.53 CFS	2.21 FPS	0.11
6	6.22%	0.62 AC.	A-2	1.76 CFS	5.78 FPS	0.66
7	2.98%	0.38 AC.	A-2	1.06 CFS	2.42 FPS	0.15
8	3.48%	0.11 AC.	A-2	0.31 CFS	3.17 FPS	0.25
9	3.54%	2.54 AC.	A-2	7.31 CFS	6.10 FPS	0.13
10	1.45%	0.44 AC.	A-1	1.25 CFS	3.08 FPS	0.18
11	4.90%	0.58 AC.	A-2	1.64 CFS	5.91 FPS	0.55
12	4.58%	7.84 AC.	B-3	22.40 CFS	9.68 FPS	1.35
13	4.23%	0.62 AC.	A-2	0.06 CFS	2.14 FPS	0.13
14	2.94%	1.52 AC.	A-2	4.32 CFS	5.47 FPS	0.51
15	1.28%	0.01 AC.	A-1	0.03 CFS	1.16 FPS	0.04
17	2.64%	7.18 AC.	B-3	20.31 CFS	7.74 FPS	0.84
18	3.92%	7.44 AC.	B-3	21.12 CFS	8.71 FPS	0.81
19	2.28%	0.54 AC.	A-1	1.54 CFS	3.84 FPS	0.28
20	2.81%	0.86 AC.	A-1	1.84 CFS	4.41 FPS	0.36
21	4.46%	0.52 AC.	A-2	1.47 CFS	4.84 FPS	0.56
22	3.85%	0.47 AC.	A-2	1.35 CFS	4.51 FPS	0.42
23	8.08%	0.38 AC.	A-2	1.08 CFS	5.65 FPS	0.71
24	2.84%	0.61 AC.	A-2	0.26 CFS	1.40 FPS	0.10
25	1.86%	4.01 AC.	A-2	1.56 CFS	2.81 FPS	0.16
26	2.21%	1.04 AC.	A-2	0.42 CFS	2.17 FPS	0.12
27	1.44%	0.46 AC.	A-2	0.18 CFS	1.23 FPS	0.04
28	7.20%	0.15 AC.	A-2	0.06 CFS	1.51 FPS	0.09

*2-YEAR FLOWRATE AND VELOCITY VALUES COMPUTED USING FLOWMASTER™

NOTE: EARTH DIKE 16 HAS BEEN OMITTED INTENTIONALLY

GRAPHIC SCALE

50 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6-24-19

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STATE OF MARYLAND — CARLTON EDWARD EDMONDS — No. 12975 — PROFESSIONAL ENGINEER

6/2/19

EARTHDIKE TREATMENT PLAN - ULTIMATE CONDITIONS

WESTMOUNT - PHASE 3

LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F

A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=100'	R-ED	13-013
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F 17-001

L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PH3)\13013_48-49_SC - ED Treatment.dwg, 6/24/2019 10:08:49 AM, JEFF DEVLIN, Adobe PDF

SEDIMENT CONTROL NOTES

1. A PRE-CONSTRUCTION MEETING MUST OCCUR WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION INSPECTION DIVISION (CID), 410-313-1855 AFTER THE FUTURE LOD AND PROTECTED AREAS ARE MARKED CLEARLY IN THE FIELD. A MINIMUM OF 48 HOUR NOTICE TO CID MUST BE GIVEN AT THE FOLLOWING STAGES:
   a. PRIOR TO THE START OF EARTH DISTURBANCE,
   b. UPON COMPLETION OF THE INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING,
   c. PRIOR TO THE START OF ANOTHER PHASE OF CONSTRUCTION OR OPENING OF ANOTHER GRADING UNIT,
   d. PRIOR TO THE REMOVAL OR MODIFICATION OF SEDIMENT CONTROL PRACTICES.

   OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE. OTHER RELATED STATE AND FEDERAL PERMITS SHALL BE REFERENCED, TO ENSURE COORDINATION AND TO AVOID CONFLICTS WITH THIS PLAN.

2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND REVISIONS THERETO. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: 3 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, 7 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION IS REQUIRED WITHIN THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED AREAS ON THE PROJECT SITE EXCEPT FOR THOSE AREAS UNDER ACTIVE GRADING.

4. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR TOPSOIL (Sec. B-4-2), PERMANENT SEEDING (Sec.B-4-5), TEMPORARY SEEDING (SEC. B-4-4) AND MULCHING (SEC. B-4-3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES IF THE GROUND IS FROZEN. INCREMENTAL STABILIZATION (SEC. B-4-1) SPECIFICATIONS SHALL BE ENFORCED IN AREAS WITH >15' OF CUT AND/OR FILL. STOCKPILES (SEC. B-4-8) IN EXCESS OF 20 FT. MUST BE BENCHED WITH STABLE OUTLET. ALL CONCENTRATED FLOW, STEEP SLOPE, AND HIGHLY ERODIBLE AREAS SHALL RECEIVE SOIL STABILIZATION MATTING (SEC. B-4-6).

5. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE, AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE CID.

6. SITE ANALYSIS:
   Total Area of Site : 89.0 Acres
   Acres Area Disturbed : 64.1 Acres
   Area to be roofed or paved : 11.53 Acres
   Area to be vegetatively stabilized : 52.54 Acres
   Total Cut : 186,000 Cu. Yds.
   Total Fill : 186,000 Cu. Yds.
   Fill material will be taken from a site with an approved sediment control plan.

7. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.

8. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE CID. THE SITE AND ALL CONTROLS SHALL BE INSPECTED BY THE CONTRACTOR WEEKLY; AND THE NEXT DAY AFTER EACH RAIN EVENT. A WRITTEN REPORT BY THE CONTRACTOR, MADE AVAILABLE UPON REQUEST, IS PART OF EVERY INSPECTION AND SHOULD INCLUDE:
   - INSPECTION DATE
   - INSPECTION TYPE (ROUTINE, PRE-STORM EVENT, DURING RAIN EVENT)
   - NAME AND TITLE OF INSPECTOR
   - WEATHER INFORMATION (CURRENT CONDITIONS AS WELL AS TIME AND AMOUNT OF LAST RECORDED PRECIPITATION)
   - BRIEF DESCRIPTION OF PROJECT'S STATUS (E.G., PERCENT COMPLETE) AND/OR CURRENT ACTIVITIES
   - EVIDENCE OF SEDIMENT DISCHARGES
   - IDENTIFICATION OF PLAN DEFICIENCIES
   - IDENTIFICATION OF SEDIMENT CONTROLS THAT REQUIRE MAINTENANCE
   - IDENTIFICATION OF MISSING OR IMPROPERLY INSTALLED SEDIMENT CONTROLS
   - COMPLIANCE STATUS REGARDING THE SEQUENCE OF CONSTRUCTION AND STABILIZATION REQUIREMENTS
   - PHOTOGRAPHS
   - MONITORING/SAMPLING
   - MAINTENANCE AND/OR CORRECTIVE ACTION PERFORMED
   - OTHER INSPECTION ITEMS AS REQUIRED BY THE GENERAL PERMIT FOR STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES (NPDES, MDE).

9. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN AND SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORKDAY, WHICHEVER IS SHORTER.

10. ANY MAJOR CHANGES OR REVISIONS TO THE PLAN OR SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE HSCD PRIOR TO PROCEEDING WITH CONSTRUCTION. MINOR REVISIONS MAY ALLOWED BY THE CID PER THE LIST OF HSCD-APPROVED FIELD CHANGES.

11. DISTURBANCE SHALL NOT OCCUR OUTSIDE THE L.O.D. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 AC. PER GRADING UNIT) AT A TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRECEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY THE CID. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE CID, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.

12. WASH WATER FROM ANY EQUIPMENT, VEHICLES, WHEELS, PAVEMENT, AND OTHER SOURCES MUST BE TREATED IN A SEDIMENT BASIN OR OTHER APPROVED WASHOUT STRUCTURE.

13. TOPSOIL SHALL BE STOCKPILED AND PRESERVED ON-SITE FOR REDISTRIBUTION ONTO FINAL GRADE.

14. ALL SILT FENCE AND SUPER SILT FENCE SHALL BE PLACED ON-THE-CONTOUR, AND BE IMBRICATED AT 25' MINIMUM INTERVALS, WITH LOWER ENDS CURLED UPHILL BY 2' IN ELEVATION.

15. STREAM CHANNELS MUST NOT BE DISTURBED DURING THE FOLLOWING RESTRICTED TIME PERIODS (INCLUSIVE):
   - USE I AND IP MARCH 1 - JUNE 15
   - USE III AND IIIP OCTOBER 1 - APRIL 30
   - USE IV MARCH 1 - MAY 31

16. A COPY OF THIS PLAN, THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND ASSOCIATED PERMITS SHALL BE ON-SITE AND AVAILABLE WHEN THE SITE IS ACTIVE.

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

ENGINEER'S SIGNATURE — DATE 1/2/19

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION, CONTROL, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIORNMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER/BUILDER — DATE 1/2/19

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6-24-19

STANDARD AND SPECIFICATIONS FOR TOPSOIL DEFINITION

Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.

PURPOSE

To provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

CONDITIONS WHERE PRACTICE APPLIES

I. This practice is limited to areas having 2:1 or flatter slopes where:

a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.

b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplied of moisture and plant nutrients.

c. The original soil to be vegetated contains material toxic to plant growth.

d. The soil is so acidic that treatment with limestone is not feasible.

II. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.

CONSTRUCTION AND MATERIAL SPECIFICATIONS

I. Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the respective soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experimental Station.

II. Topsoil specifications - soil to be used as topsoil must meet the following:

a. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by a agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2" in diameter.Materials.

b. Topsoil must be free of plant parts such as bermuda grass, quackgrass, Johnsongrass, nutsedge, poison ivy, thistle, or others as specified. c. Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate if 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.

III. For sites having disturbed areas under 5 acres:

a. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.

IV. For sites having disturbed areas over 5 acres:

a. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:

1. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.
2. Organic content of topsoil shall be not less than 1.5 percent by weight.
3. Topsoil having soluble salt greater than 500 parts per mill shall not be used.
4. No sod or seed shall be placed on soil which has been with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of photo-toxic materials.

Note: Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

b. Place topsoil (if required) and apply soil amendments as specified in 2.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.

V. Topsoil Application

a. When topsoilling, maintain needed erosion and sediment control practices such as diversion, Grade Stabilization Structures, Earth Dikes, Slope Silt Fence and Sediment Traps and Basins.

b. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4" - 8" higher in elevation.

c. Topsoil shall be uniformly distributed in a 4' -8' layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoilling or other operations shall be corrected in order to prevent the formation of depressions or water

d. Topsoil shall not be placed while the topsoil or subsoil is frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

VI. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:

a. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:

1. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.
2. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a Ph of 7.0 to 8.0. If compost does not meet these requirements, the appropriate prior to use.
3. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet. b. Composted sludge shall be amended with a potassium fertilizer applied at a rate of 4lb/1,000 square feet, and 1/3 the normal lime application rate.

References: Guideline Specifications, Soil Preparation and Sodding. MD-VA Pub. #1 , Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

This Development Plan is approved for Soil Erosion and Sediment Control by the Howard Soil Conservation District.

Howard S.C.D. — Date 1/9/18

B-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

Definition
The process of preparing the soils to sustain adequate vegetative stabilization.

Purpose
To provide a suitable soil medium for vegetative growth.

Conditions Where Practice Applies
Where vegetative stabilization is to be established.

Criteria

A. Soil Preparation

1. Temporary Stabilization

a. Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.

b. Apply fertilizer and lime as prescribed on the plans.

c. Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.

2. Permanent Stabilization

a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:

i. Soil pH between 6.0 and 7.0.

ii. Soluble salts less than 500 parts per million (ppm).

iii. Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.

iv. Soil contains 1.5 percent minimum organic matter by weight.

v. Soil contains sufficient pore space to permit adequate root penetration.

b. Application of amendments or topsoil is required if on-site soils do not meet the above conditions.

c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.

d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.

e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

B. Topsoiling

1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

2. Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.

3. Topsoiling is limited to areas having 2:1 or flatter slopes where:

a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.

b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.

c. The original soil to be vegetated contains material toxic to plant growth.

d. The soil is so acidic that treatment with limestone is not feasible.

4. Areas having slopes steeper than 2:1 require special consideration and design.

5. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:

a. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1½ inches in diameter.

b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.

c. Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

6. Topsoil Application

a. Erosion and sediment control practices must be maintained when applying topsoil.

b. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.

c. Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

C. Soil Amendments (Fertilizer and Lime Specifications)

1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.

2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.

3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve.

4. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.

5. Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

Definition
The application of seed and mulch to establish vegetative cover.

Purpose
To protect disturbed soils from erosion during and at the end of construction.

Conditions Where Practice Applies
To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

Criteria

A. Seeding

1. Specifications

a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.

b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws.

c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective.

d. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

2. Application

a. Dry Seeding: This includes use of conventional drop or broadcast spreaders.

i. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries.

ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good seed to soil contact.

b. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.

i. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.

ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.

c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).

i. If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P205 (phosphorous), 200 pounds per acre; K20 (potassium), 200 pounds per acre.

ii. Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.

iii. Mix seed and fertilizer on site and seed immediately and without interruption.

iv. When hydroseeding do not incorporate seed into the soil.

B. Mulching

1. Mulch Materials (in order of preference)

a. Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dusty. **Note: Use only sterile straw mulch in areas where one species of grass is desired.**

b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state.

i. WCFM is to be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.

ii. WCFM, including dye, must contain no germination or growth inhibiting factors.

iii. WCFM materials are to be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material must form a blotter-like ground cover, on application, having moisture absorption and percolation properties and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.

iv. WCFM material must not contain elements or compounds at concentration levels that will be phyto-toxic.

v. WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum.

2. Application

a. Apply mulch to all seeded areas immediately after seeding.

b. When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre.

c. Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.

3. Anchoring

a. Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon the size of the area and erosion hazard:

i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should follow the contour.

ii. Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.

iii. Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used. Follow application rates as specified by the manufacturer. Application of liquid binders needs to be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. **Use of asphalt binders is strictly prohibited.**

iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 3,000 feet long.

B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

Definition
To stabilize disturbed soils with vegetation for up to 6 months.

Purpose
To use fast growing vegetation that provides cover on disturbed soils.

Conditions Where Practice Applies
Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

Criteria

1. Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan.

2. For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.

3. When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3.A.1.b and maintain until the next seeding season.

TEMPORARY SEEDING SUMMARY

Hardiness Zone (from Figure B.3): 6b **Seed Mixture** (from Table B.1):					Fertilizer Rate (10-20-20)	Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths		
1	ANNUAL RYEGRASS	40 lb/ac	Mar.1 to May 15. Aug. 1 to Oct. 15	0.5 inches	436 lb/ac (10 lb/1000 sf)	2 tons/ac (90 lb/1000 sf)
2	PEARL MILLET	20 lb/ac	MAY 16 to JULY 31	0.5 inches		

TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be redisturbed where a short-term vegetative cover is needed.

Seedbed Preparation
Loosen upper three inches of soil by raking, discing or other acceptable means before seeding (unless previously loosened).

Soil Amendments
Apply 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq ft).

Seeding
For periods March 1 thru April 30 and from August 15 thru November 15, seed with 2-1/2 bushel per acre of annual rye (3.2 lbs./1000 sq.ft.). For the period May 1 thru August 14, seed with 3 lbs per acre of weeping lovegrass (.07 lbs/1000 sq ft). For the period November 16 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

Mulching
Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sq ft) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes, 8 ft or higher, use 348 gal per acre (8 gal/1000 sq ft) for anchoring.

Refer to the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for rate and methods not covered.

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

Definition
To stabilize disturbed soils with permanent vegetation.

Purpose
To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils.

Conditions Where Practice Applies
Exposed soils where ground cover is needed for 6 months or more.

Criteria

A. Seed Mixtures

1. General Use

a. Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.

b. Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.

c. For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency.

d. For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 ½ pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary.

2. Turfgrass Mixtures

a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.

b. Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.

i. Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.

ii. Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.

iii. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes; Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.

iv. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes; Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1 ½ to 3 pounds per 1000 square feet.

Notes:
Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland"

Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line

c. Ideal Times of Seeding for Turf Grass Mixtures

Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a)

Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b)

Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b)

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION con't

d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1 ½ inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.

e. If soil moisture is deficient, supply new seedings with adequate water for plant growth (½ to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

PERMANENT SEEDING SUMMARY

Hardiness Zone (from Figure B.3): 6b **Seed Mixture** (from Table B.3): #9 (*Tall Fescue/ Kentucky Bluegrass*)					Fertilizer Rate (10-20-20)			Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	N	P_2O_5	K_2O	
9	*CERTIFIED TALL FESCUE BLEND (95% BY WEIGHT: FALCON IV, PENN 1901 & REBEL EXEDA) AND CERTIFIED KENTUCKY BLUEGRASS BLEND (5% BY WEIGHT: COURTYARD, RAVEN & YANKEE)	6-8 LB/10,00SF	Mar. 1 to May15. Aug. 15 to Oct. 15	$\frac{1}{4}$ - $\frac{1}{2}$ in $\frac{1}{4}$ - $\frac{1}{2}$ in $\frac{1}{4}$ - $\frac{1}{2}$ in	45 pounds per acre (1.0 lb/ 1000 sf)	90 lb/ac (2 lb/ 1000 sf)	90 lb/ac (2 lb/ 1000 sf)	2 tons/ac (90 lb/ 1000 sf)

* OTHER CULTIVARS LISTED AS "PROVEN" IN THE MOST CURRENT UMD TT-77 MAY ALSO BE USED.

B. Sod: To provide quick cover on disturbed areas (2:1 grade or flatter).

1. General Specifications

a. Class of turfgrass sod must be Maryland State Certified. Sod labels must be made available to the job foreman and inspector.

b. Sod must be machine cut at a uniform soil thickness of ¾ inch, plus or minus ¼ inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn or uneven ends will not be acceptable.

c. Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.

d. Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.

e. Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation.

2. Sod Installation

a. During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to laying the sod.

b. Lay the first row of sod in a straight line with subsequent rows placed parallel to it and tightly wedged against each other. Stagger lateral joints to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.

c. Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints. Roll and tamp, peg or otherwise secure the sod to prevent slippage on slopes. Ensure solid contact exists between sod roots and the underlying soil surface.

d. Water the sod immediately following rolling and tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping and irrigating for any piece of sod within eight hours.

3. Sod Maintenance

a. In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to prevent wilting.

b. After the first week, sod watering is required as necessary to maintain adequate moisture content.

c. Do not mow until the sod is firmly rooted. No more than ? of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless otherwise specified.

PERMANENT SEEDING NOTES

Apply to graded or cleared area not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

Seedbed Preparation
Loosen upper three inches of soil by raking, discing or other acceptable means before seeding (unless previously loosened).

Soil Amendments
In lieu of soil test recommendations, use one of the following schedules

1) Preferred - Apply 2 tons per acre dolomitic limestone (92 lbs/1000 square feet) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq ft) before seeding. Harrow or disc into upper three inches of soil. At time of seeding, apply 400 lbs per acre 30-0-0 unreaform fertilizer (9 lbs/1000 sq ft).

2) Acceptable - Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq ft) and 1000 lbs per acre 10-10-10 fertilizer (23 lbs/1000 sq ft) before seeding. Harrow or disc into upper three inches of soil.

Seeding
For the periods March 1 thru April 30, and August 1 thru October 15, seed with 60 lbs per acre (1.4 lbs/1000 sq ft) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs per acre (.05 lbs/1000 sq ft) of weeping lovegrass. During the period of October 16 thru February 28, protect site by: Option (1) 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option (2) Use sod. Option (3) Seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.

Mulching
Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sq ft) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq ft) for anchoring.

Maintenance
Inspect all seeded areas and make needed repairs, replacements and reseedings.

B-4-8 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA

Definition
A mound or pile of soil protected by appropriately designed erosion and sediment control measures.

Purpose
To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and changes to drainage patterns.

Conditions Where Practice Applies
Stockpile areas are utilized when it is necessary to salvage and store soil for later use.

Criteria
1. The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan.
2. The footprint of the stockpile must be sized to accommodate the anticipated volume of material and based on a side slope ratio no steeper than 2:1. Benching must be provided in accordance with Section B-3 Land Grading.
3. Runoff from the stockpile area must drain to a suitable sediment control practice.
4. Access the stockpile area from the upgrade side.
5. Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary swale or diversion fence. Provisions must be made for discharging concentrated flow in a non-erosive manner.
6. Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sediment control practice must be used to intercept the discharge.
7. Stockpiles must be stabilized in accordance with the 3/7 day stabilization requirement as well as Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization.
8. If the stockpile is located on an impervious surface, a liner should be provided below the stockpile to facilitate cleanup. Stockpiles containing contaminated material must be covered with impermeable sheeting.

Maintenance
The stockpile area must continuously meet the requirements for Adequate Vegetative Establishment in accordance with Section B-4 Vegetative Stabilization. Side slopes must be maintained at no steeper than a 2:1 ratio. The stockpile area must be kept free of erosion. If the vertical height of a stockpile exceeds 20 feet for 2:1 slopes, 30 feet for 3:1 slopes, or 40 feet for 4:1 slopes, benching must be provided in accordance with Section B-3 Land Grading.

GLW
PLANNING | ENGINEERING | SURVEYING
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DESIGNED BY: JRD
DRAWN BY: JRD
CHECKED BY: DEV

DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975 , EXPIRATION DATE: MAY 26, 2020 .
1/2/19

STATE OF MARYLAND — CARLTON KENNETH GUTSCHICK — NO. 12975 — PROFESSIONAL ENGINEER

SEDIMENT CONTROL NOTES and DETAILS

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

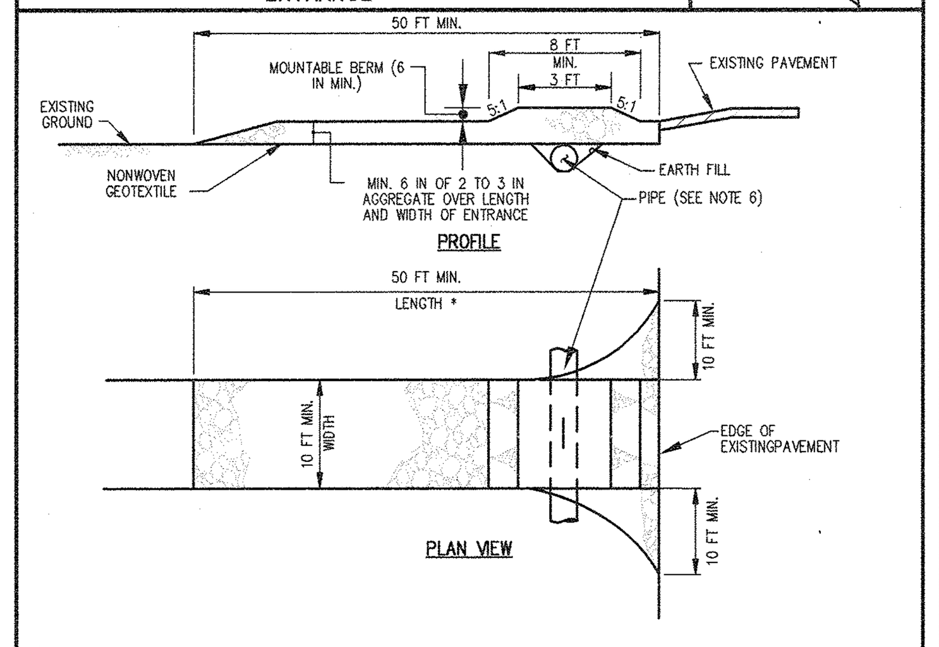
SCALE	ZONING	G. L. W. FILE No.
AS NOTED	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	50 OF 92

L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PH3)\13013_50-52_SC - Notes & Details.dwg, PLOTTED: 12/27/2018 4:48 PM, LAST SAVED: 12/27/2018 10:24 AM, PLOTTED BY: Jennifer R. Dicks

F 17-001

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE



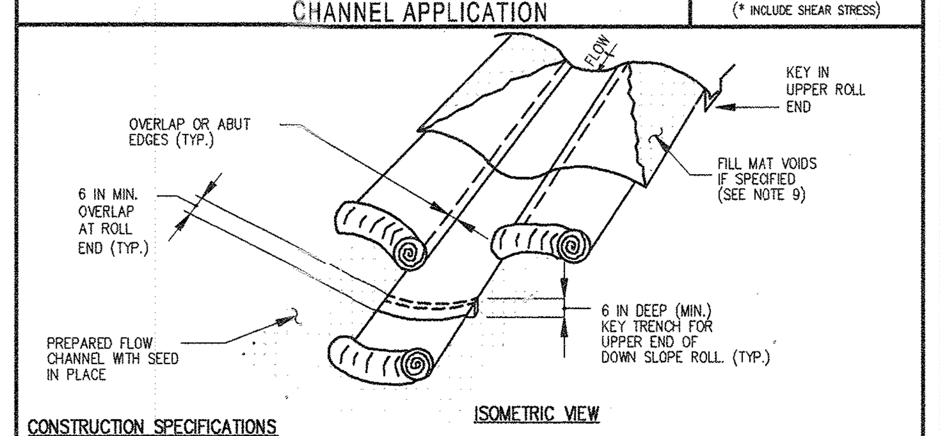
CONSTRUCTION SPECIFICATIONS

1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-4-6-C PERMANENT SOIL STABILIZATION MATTING CHANNEL APPLICATION

STANDARD SYMBOL: PSSMC - * lb/ft² (* INCLUDE SHEAR STRESS)



CONSTRUCTION SPECIFICATIONS

1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES OR WOOD STAKES. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1 ½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPE AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS, UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
5. UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTER LINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
7. KEY IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLED, ONCE THE MATTING IS KEYED AND STAPLED IN PLACE, FILL THE MAT VOIDS WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAXIMIZE SOIL/MAT CONTACT WITHOUT CRUSHING MAT.
10. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
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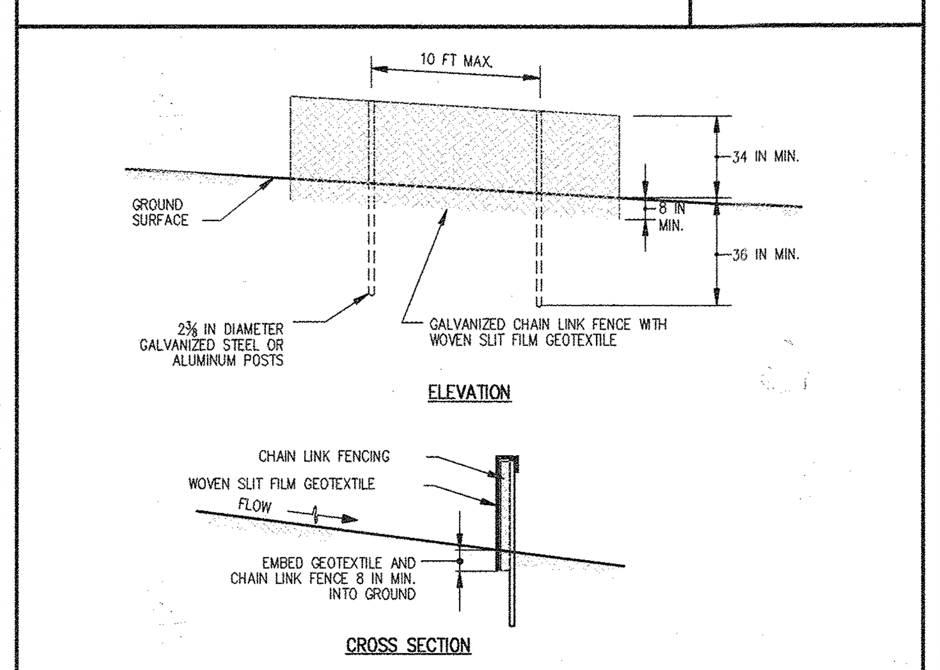
DETAIL E-3 SUPER SILT FENCE

STANDARD SYMBOL: SSF



CONSTRUCTION SPECIFICATIONS

1. INSTALL 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2⅜ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
3. FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.
4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
5. EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
6. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

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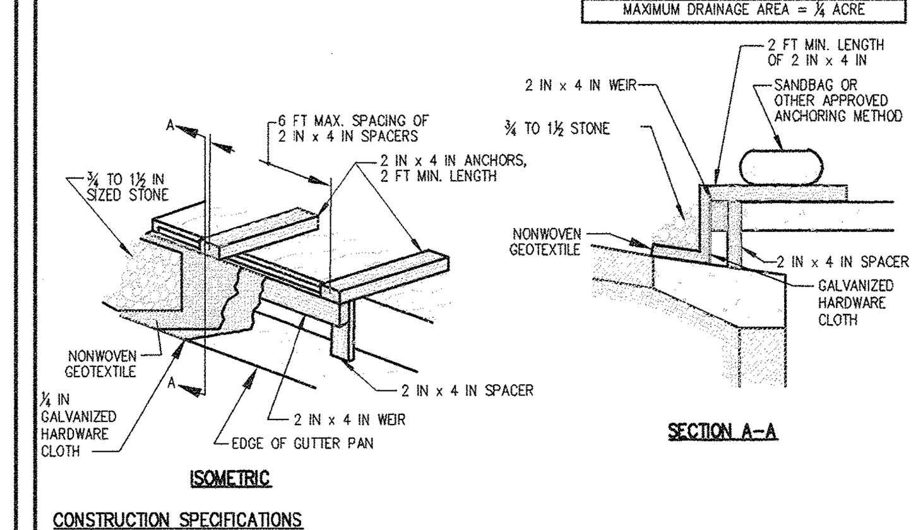
DETAIL E-9-3 CURB INLET PROTECTION

STANDARD SYMBOL: CIP

MAXIMUM DRAINAGE AREA = ¼ ACRE



CONSTRUCTION SPECIFICATIONS

1. USE NOMINAL 2 INCH x 4 INCH LUMBER
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
3. NAIL THE 2x4 WEIR TO 9 INCH LONG VERTICAL SPACERS (MAXIMUM 6 FEET APART).
4. ATTACH A CONTINUOUS PIECE OF ¼ INCH GALVANIZED HARDWARE CLOTH, WITH A MINIMUM WIDTH OF 30 INCHES AND A MINIMUM LENGTH OF 4 FEET LONGER THAN THE THROAT OPENING, TO THE 2x4 WEIR, EXTENDING IT 2 FEET BEYOND THROAT ON EACH SIDE.
5. PLACE A CONTINUOUS PIECE OF NONWOVEN GEOTEXTILE OF THE SAME DIMENSIONS AS THE HARDWARE CLOTH OVER THE HARDWARE CLOTH AND SECURELY ATTACH TO THE 2x4 WEIR.
6. PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL TO 2x4 ANCHORS (MINIMUM 2 FEET LENGTH). EXTEND THE ANCHORS ACROSS THE INLET TOP AND HOLD IN PLACE BY SANDBAGS OR OTHER APPROVED ANCHORING METHOD.
7. INSTALL END SPACERS A MINIMUM OF 1 FOOT BEYOND THE ENDS OF THE THROAT OPENING.
8. FORM THE HARDWARE CLOTH AND THE GEOTEXTILE TO THE CONCRETE GUTTER AND FACE OF CURB TO SPAN THE INLET OPENING. COVER THE HARDWARE CLOTH AND GEOTEXTILE WITH CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE.
9. AT NON-SUMP LOCATIONS, INSTALL A TEMPORARY SANDBAG OR ASPHALT BERM TO PREVENT INLET BYPASS.
10. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

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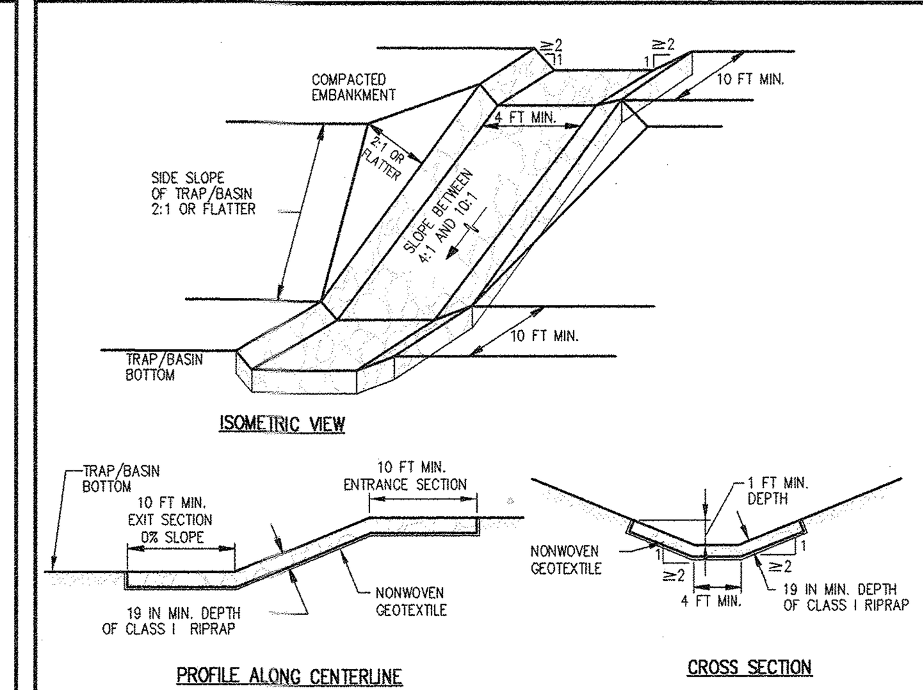
DETAIL D-3-1 RIPRAP INFLOW PROTECTION

STANDARD SYMBOL: RRP



CONSTRUCTION SPECIFICATIONS

1. PROVIDE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, UNDER THE BOTTOM AND ALONG SIDES OF ALL RIPRAP.
2. CONSTRUCT INFLOW CHANNEL WITH CLASS I RIPRAP OR EQUIVALENT RECYCLED CONCRETE LINING TO A MINIMUM DEPTH OF 19 INCHES (2 x D_{50}) AND A 1 FOOT DEEP FLOW CHANNEL. INFLOW RIPRAP PROTECTION CHANNEL MUST HAVE A TRAPEZOIDAL CROSS SECTION WITH 2:1 OR FLATTER SIDE SLOPES AND A 4 FOOT MINIMUM BOTTOM WIDTH.
3. INSTALL ENTRANCE AND EXIT SECTIONS AS SHOWN ON THE PROFILE.
4. BLEND RIPRAP INTO EXISTING GROUND.
5. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. KEEP POINTS OF INFLOW AND OUTFLOW FREE OF EROSION.

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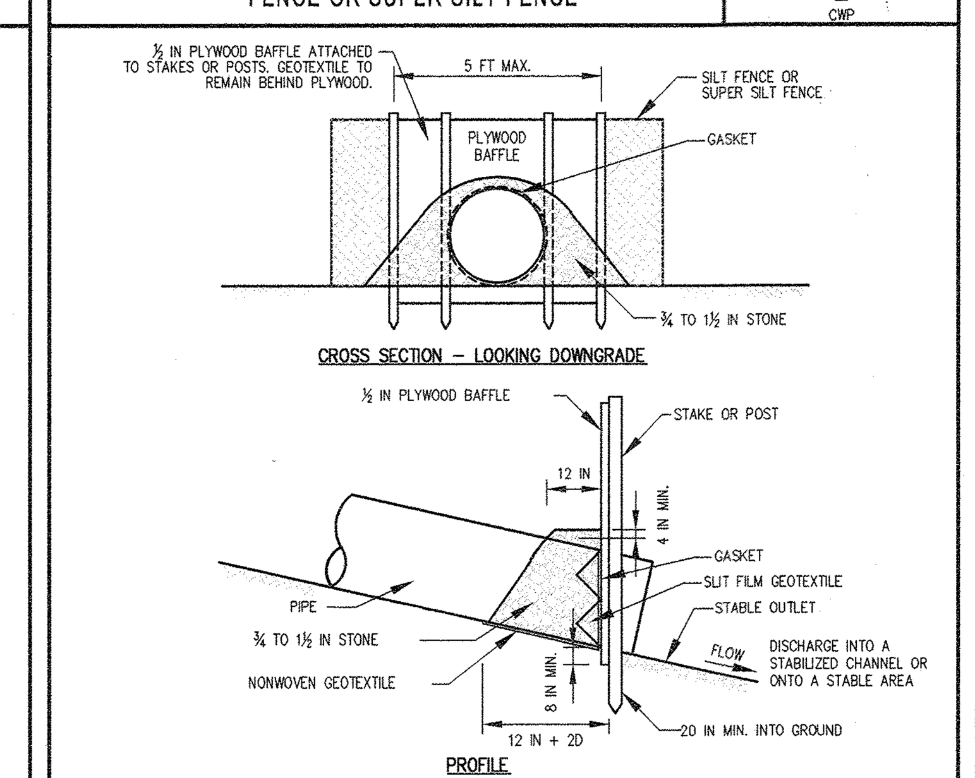
DETAIL E-4 CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE

STANDARD SYMBOL: CWP



CONSTRUCTION SPECIFICATIONS

1. INSTALL SILT FENCE OR SUPER SILT FENCE IN ACCORDANCE WITH DETAIL E-1 OR DETAIL E-2.
2. AT THE PIPE LOCATION, CUT AND PULL BACK THE WOVEN SLIT FILM GEOTEXTILE AND CHAIN LINK FENCING. SECURE GEOTEXTILE TO PIPE WITH GASKET. INSTALL ADDITIONAL STAKES OR POSTS IF NECESSARY TO ACCOMMODATE THE INSTALLATION OF THE BAFFLE BOARD.
3. ENTRENCH ½ INCH PLYWOOD BAFFLE A MINIMUM OF 8 INCHES AND SECURE TO THE UPGRADE SIDE OF THE FENCE STAKES OR POSTS. BAFFLE SHOULD BE AT LEAST THE HEIGHT OF THE FENCE.
4. PLACE ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE BEHIND THE PLYWOOD BAFFLE ON NONWOVEN GEOTEXTILE AND EXTEND 12 INCH MIN. ALONG TOP OF PIPE AND TO A HEIGHT OF 4 INCHES ABOVE THE TOP OF PIPE.
5. USE NONWOVEN AND WOVEN SLIT FILM GEOTEXTILES AS SPECIFIED IN SECTION H-1 MATERIALS.
6. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN SEDIMENT REACHES 6 INCHES IN HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL BAFFLE, CHAIN LINK, AND GEOTEXTILE. REPLACE STONE IF DISPLACED. KEEP POINT OF DISCHARGE FREE OF EROSION.

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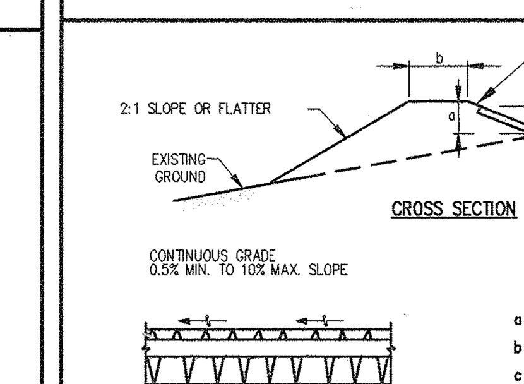
DETAIL C-1 EARTH DIKE

STANDARD SYMBOL: A-1 — PLACE DESIGNATION (e.g. A-1) ON FLOW CHANNEL SIDE OF DIKE.



DIKE TYPE

	A	B
a - DIKE HEIGHT	18 IN MIN.	30 IN MIN.
b - DIKE WIDTH	24 IN MIN.	36 IN MIN.
c - FLOW WIDTH	4 FT MIN.	6 FT MIN.
d - FLOW DEPTH	12 IN MIN.	24 IN MIN.

FLOW CHANNEL STABILIZATION

A-1	SEED WITH STRAW MULCH AND TACK. (NOT ALLOWED FOR CLEAR WATER DIVERSION.)
A-2/B-2	SEED WITH SOIL STABILIZATION MATTING OR LINE WITH SOD.
A-3/B-3	4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE PRESSED INTO SOIL A MINIMUM OF 7 INCHES AND FLUSH WITH GROUND.

CONSTRUCTION SPECIFICATIONS

1. REMOVE AND DISPOSE OF ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SO AS NOT TO INTERFERE WITH PROPER FUNCTION OF EARTHDIKE.
2. EXCAVATE OR SHAPE EARTH DIKE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED. BANK PROJECTIONS OR OTHER IRREGULARITIES ARE NOT ALLOWED.
3. COMPACT FILL.
4. CONSTRUCT FLOW CHANNEL ON AN UNINTERRUPTED, CONTINUOUS GRADE, ADJUSTING THE LOCATION DUE TO FIELD CONDITIONS AS NECESSARY TO MAINTAIN POSITIVE DRAINAGE.
5. PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.
6. STABILIZE EARTH DIKE WITHIN THREE DAYS OF INSTALLATION. STABILIZE FLOW CHANNEL FOR CLEAR WATER DIVERSION WITHIN 24 HOURS OF INSTALLATION.
7. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS, AND MAINTAIN POSITIVE DRAINAGE. KEEP EARTH DIKE AND POINT OF DISCHARGE FREE OF EROSION, AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.
8. UPON REMOVAL OF EARTH DIKE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS OF REMOVAL STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

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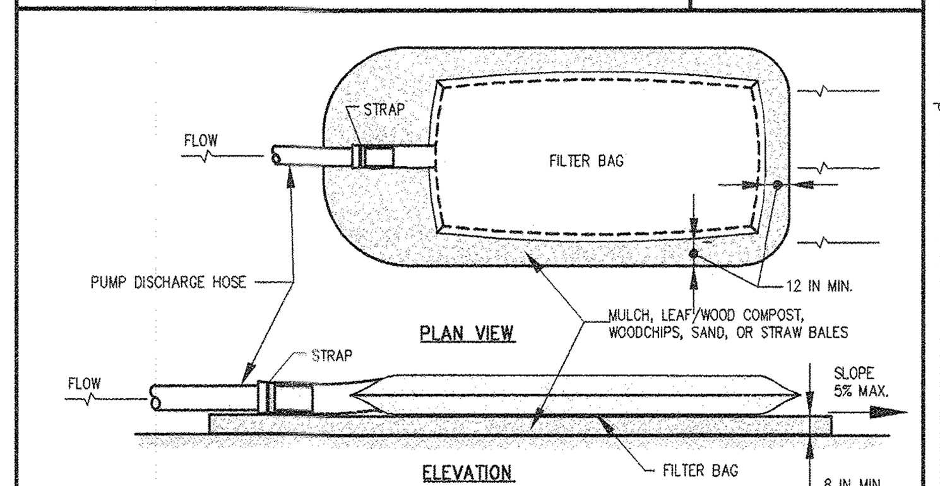
DETAIL F-4 FILTER BAG

STANDARD SYMBOL: FB



CONSTRUCTION SPECIFICATIONS

1. TIGHTLY SEAL SLEEVE AROUND THE PUMP DISCHARGE HOSE WITH A STRAP OR SIMILAR DEVICE.
2. PLACE FILTER BAG ON SUITABLE BASE (E.G., MULCH, LEAF/WOOD COMPOST, WOODCHIPS, SAND, OR STRAW BALES) LOCATED ON A LEVEL OR 5% MAXIMUM SLOPING SURFACE. DISCHARGE TO A STABILIZED AREA. EXTEND BASE A MINIMUM OF 12 INCHES FROM EDGES OF BAG.
3. CONTROL PUMPING RATE TO PREVENT EXCESSIVE PRESSURE WITHIN THE FILTER BAG IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATIONS. AS THE BAG FILLS WITH SEDIMENT, REDUCE PUMPING RATE.
4. REMOVE AND PROPERLY DISPOSE OF FILTER BAG UPON COMPLETION OF PUMPING OPERATIONS OR AFTER BAG HAS REACHED CAPACITY, WHICHEVER OCCURS FIRST. SPREAD THE DEWATERED SEDIMENT FROM THE BAG IN AN APPROVED UPLAND AREA AND STABILIZE WITH SEED AND MULCH BY THE END OF THE WORK DAY. RESTORE THE SURFACE AREA BENEATH THE BAG TO ORIGINAL CONDITION UPON REMOVAL OF THE DEVICE.
5. USE NONWOVEN GEOTEXTILE WITH DOUBLE STITCHED SEAMS USING HIGH STRENGTH THREAD. SIZE SLEEVE TO ACCOMMODATE A MAXIMUM 4 INCH DIAMETER PUMP DISCHARGE HOSE. THE BAG MUST BE MANUFACTURED FROM A NONWOVEN GEOTEXTILE THAT MEETS OR EXCEEDS MINIMUM AVERAGE ROLL VALUES (MARV) FOR THE FOLLOWING:

GRAB TENSILE	250 LB	ASTM D-4632
PUNCTURE	150 LB	ASTM D-4833
FLOW RATE	70 GAL/MIN/FT²	ASTM D-4491
PERMITTIVITY (SEC^{-1})	1.2 SEC^{-1}	ASTM D-4491
UV RESISTANCE	70% STRENGTH @ 500 HOURS	ASTM D-4355
APPARENT OPENING SIZE (AOS)	0.15-0.18 MM	ASTM D-4751
SEAM STRENGTH	90%	ASTM D-4632

6. REPLACE FILTER BAG IF BAG CLOGS OR HAS RIPS, TEARS, OR PUNCTURES. DURING OPERATION KEEP CONNECTION BETWEEN PUMP HOSE AND FILTER BAG WATER TIGHT. REPLACE BEDDING IF IT BECOMES DISPLACED.

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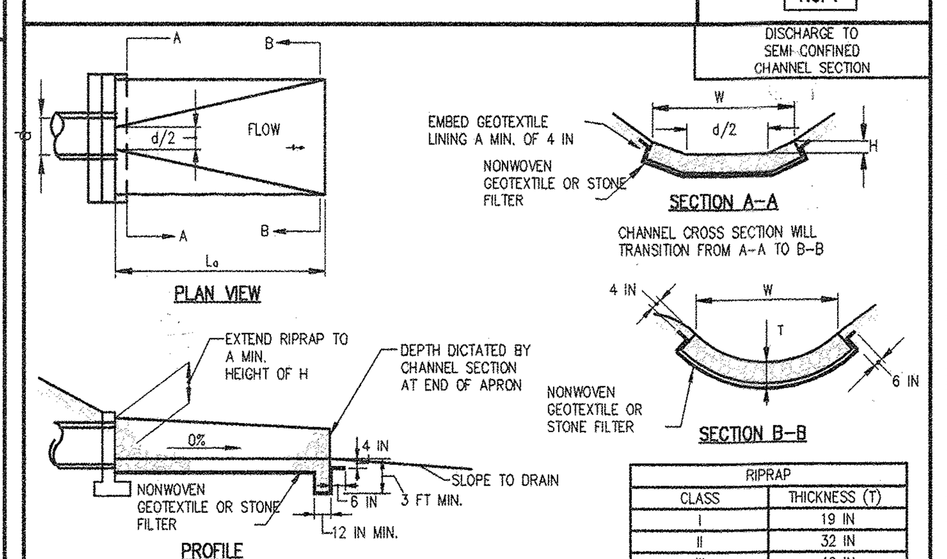
DETAIL D-4-1-A ROCK OUTLET PROTECTION I

STANDARD SYMBOL: ROP1 — DISCHARGE TO SEMI CONFINED CHANNEL SECTION



RIPRAP	
CLASS	THICKNESS (T)
I	19 IN
II	32 IN
III	46 IN

CONSTRUCTION SPECIFICATIONS

1. RIPRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCTURING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE TOGETHER.
3. PREPARE THE SUBGRADE FOR GEOTEXTILE OR STONE FILTER (⅜ TO 1½ INCH STONE FOR 6 INCH MINIMUM DEPTH) AND RIPRAP TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
4. EXTEND GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIPRAP AND EMBED AT LEAST 4 INCHES AT SIDES OF THE RIPRAP.
5. CONSTRUCT RIPRAP OUTLET TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. PLACE STONE FOR RIPRAP OUTLET IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE RIPRAP IN A MANNER TO PREVENT DAMAGE TO THE STONE FILTER BLANKET OR GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
6. WHERE NO ENDWALL IS USED, CONSTRUCT THE UPSTREAM END OF THE APRON SO THAT THE WIDTH IS TWO TIMES THE DIAMETER OF THE OUTLET PIPE, AND EXTEND THE STONE UNDER THE OUTLET BY A MINIMUM OF 18 INCHES.
7. CONSTRUCT APRON WITH 0% SLOPE ALONG ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STONE SO THAT IT BLENDS IN WITH EXISTING GROUND.
8. MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND DISLODGED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

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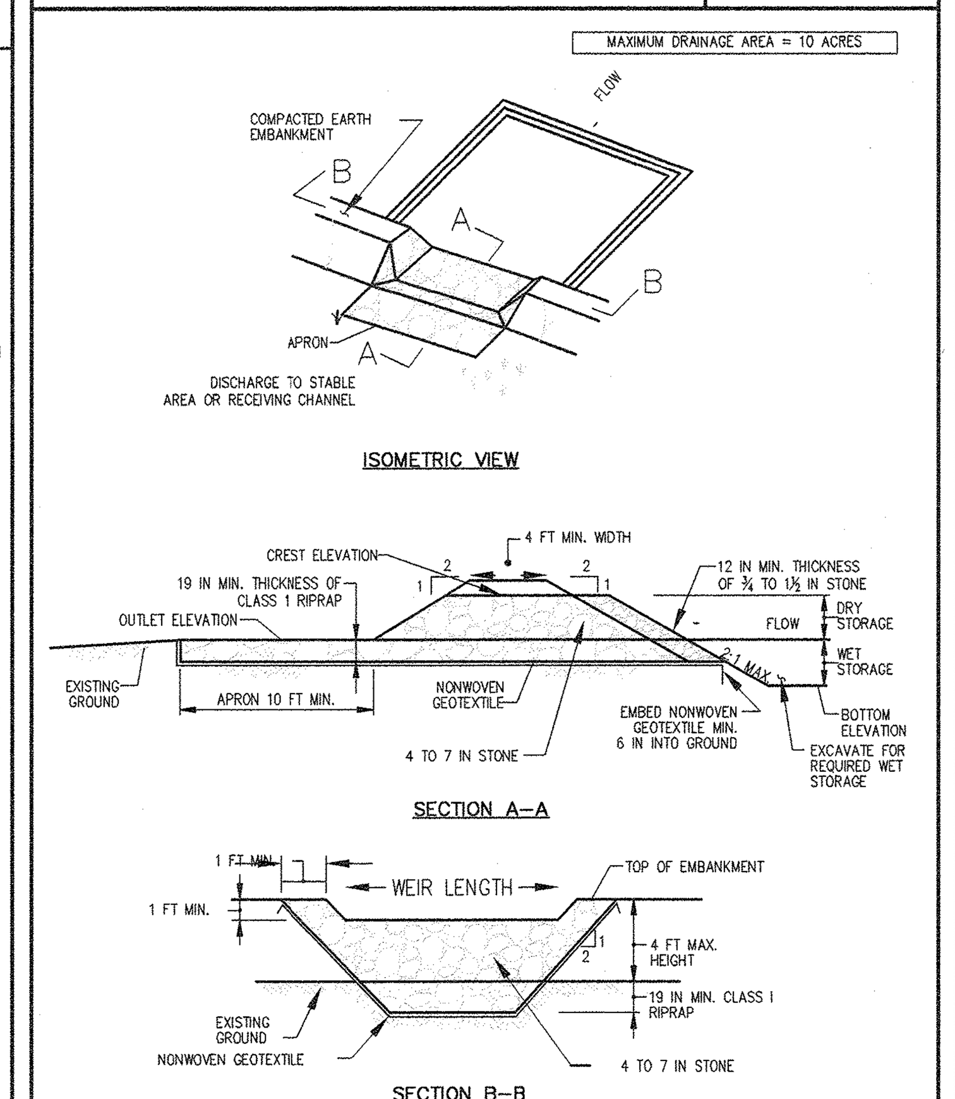
DETAIL G-1-2 STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II

STANDARD SYMBOL: ST-II

MAXIMUM DRAINAGE AREA = 10 ACRES



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DETAIL G-1-2 STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II

STANDARD SYMBOL: ST-II

CONSTRUCTION SPECIFICATIONS

1. CONSTRUCT TRAP IN SUCH A MANNER THAT EROSION AND WATER POLLUTION ARE AVOIDED.
2. CLEAR, GRUB, AND STRIP ANY VEGETATION AND ROOT MAT FROM THE AREA UNDER THE EMBANKMENT AND TRAP BOTTOM.
3. USE FILL MATERIAL FREE OF ROOTS, WOODY VEGETATION, OVERSIZED STONES, ROCKS, ORGANIC MATERIAL, OR OTHER OBJECTIONABLE MATERIAL FOR THE EMBANKMENT.
4. CONSTRUCT TOP OF EMBANKMENT 1 FOOT MINIMUM ABOVE WEIR CREST. COMPACT THE EMBANKMENT BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
5. MAKE ALL CUT AND FILL SLOPES 2:1 OR FLATTER.
6. PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVER THE BOTTOM AND SIDES OF OUTLET AND APRON PRIOR TO PLACEMENT OF RIPRAP. OVERLAP SECTIONS OF GEOTEXTILE AT LEAST 1 FOOT WITH THE SECTION NEARER TO THE TRAP PLACED ON TOP. EMBED GEOTEXTILE AT LEAST 6 INCHES INTO EXISTING GROUND AT ENTRANCE OF OUTLET CHANNEL.
7. USE CLEAN 4 TO 7 INCH RIPRAP TO CONSTRUCT THE WEIR. USE CLASS I RIPRAP FOR THE APRON. USE OF RECYCLED CONCRETE EQUIVALENT IS ACCEPTABLE.
8. PLACE 1 FOOT OF CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE ON THE UPSTREAM FACE OF THE WEIR.
9. CONSTRUCT AND MAINTAIN THE OUTLET ACCORDING TO APPROVED PLAN, AND IN SUCH A MANNER THAT EROSION AT OR BELOW THE OUTLET DOES NOT OCCUR.
10. STABILIZE THE EMBANKMENT AND INTERIOR SLOPES WITH SEED AND MULCH. STABILIZE POINTS OF CONCENTRATED INFLOW AS SHOWN ON APPROVED PLAN.
11. REMOVE SEDIMENT AND RESTORE TRAP TO ORIGINAL DIMENSIONS WHEN SEDIMENT HAS ACCUMULATED TO CLEANOUT ELEVATION (50% OF WET STORAGE DEPTH). DEPOSIT REMOVED SEDIMENT IN AN APPROVED AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE. KEEP POINTS OF INFLOW AND OUTFLOW AS WELL AS INTERIOR OF THE TRAP FREE FROM EROSION, AND REMOVE ACCUMULATED DEBRIS. MAINTAIN EMBANKMENTS TO CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. REMOVE ANY TREES, BRUSH, OR OTHER WOODY VEGETATION GROWING ON EMBANKMENT OR NEAR PRINCIPAL SPILLWAY. MAINTAIN LINE, GRADE, AND CROSS SECTION.
12. WHEN DEWATERING TRAP, PASS REMOVED WATER THROUGH AN APPROVED SEDIMENT CONTROL PRACTICE.
13. UPON REMOVAL, GRADE AND STABILIZE THE AREA OCCUPIED BY TRAP.

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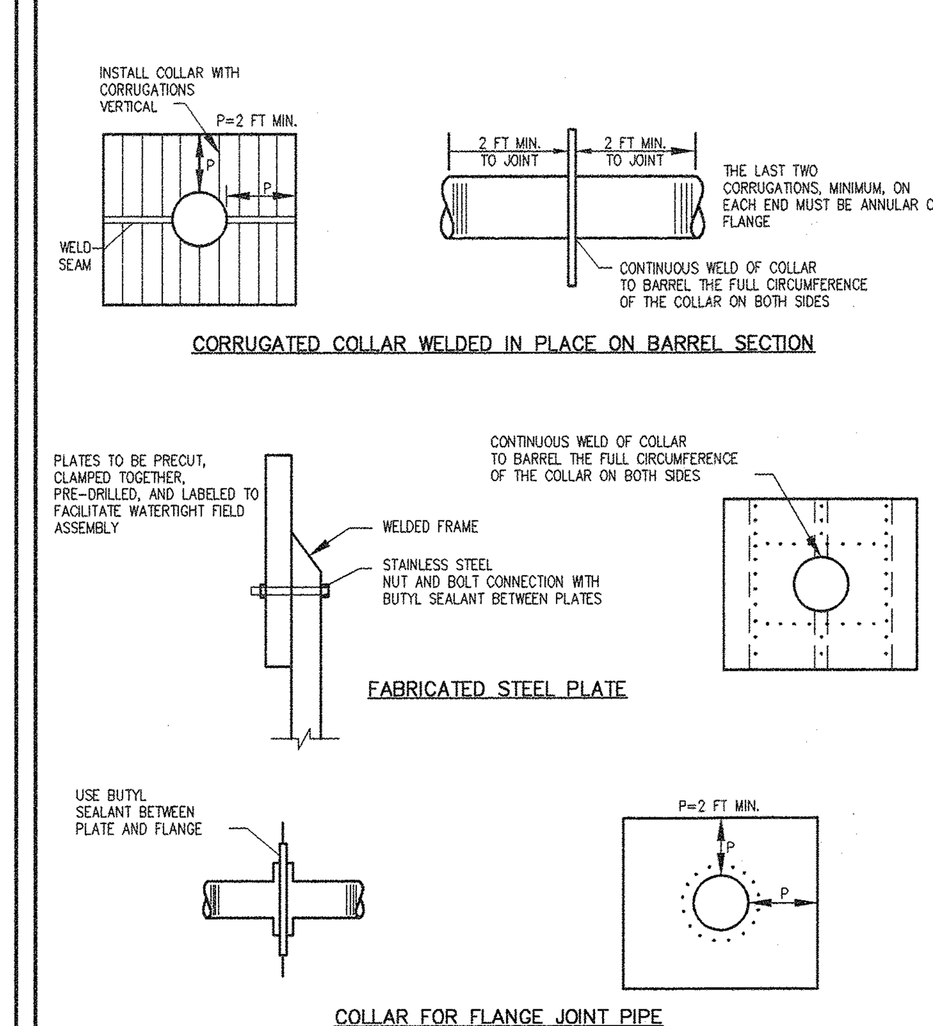
DETAIL G-2-1 TYPICAL ANTI-SEEP COLLARS

STANDARD SYMBOL



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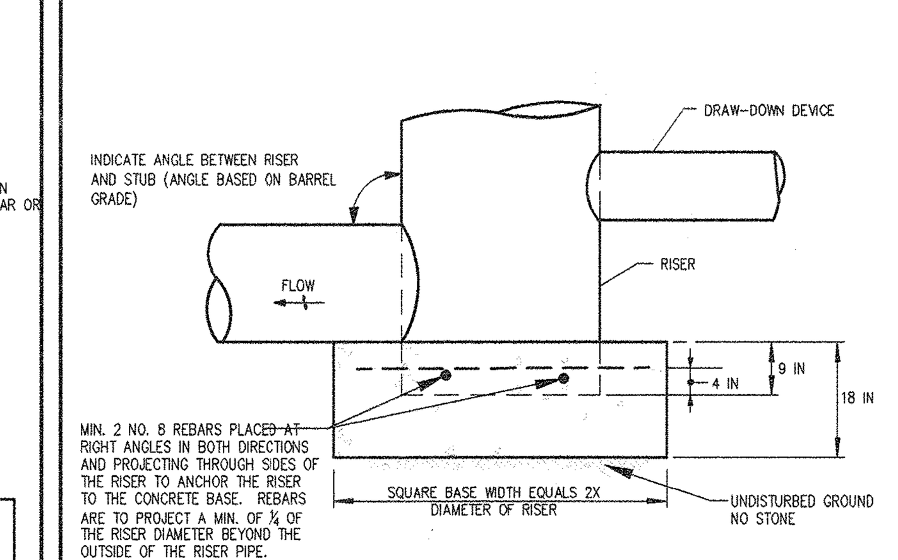
DETAIL G-2-2 RISER BASE CORRUGATED

STANDARD SYMBOL



CONSTRUCTION SPECIFICATIONS

1. BOTTOM OF CONCRETE BASE TO BE PLACED ON UNDISTURBED, NATURAL GROUND.
2. NO STONE IS ALLOWED UNDER BASE. IF NECESSARY, TO ACHIEVE STABILITY INCREASE DEPTH OF CONCRETE BASE.

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This Development Plan is approved for Soil Erosion and Sediment Control by the Howard Soil Conservation District.

Howard S.C.D. 1/9/18 Date

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

ENGINEER'S SIGNATURE 1/2/19 DATE

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION, CONTROL, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIORNMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

M. Jenny Ratter — SIGNATURE OF DEVELOPER/BUILDER 1/2/19 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways 1/29/2019 Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development 6-27-19 Date

Chief, Development Engineering Division 6.24.19 Date

DUST CONTROL

Definition
Controlling dust blowing and movement on construction sites and roads.

Purpose
To prevent blowing and movement of dust from exposes soil surfaces, reduce on and off-site damage, health hazards, and improve traffic safety.

Conditions Where Practice Applies
This practice is applicable to areas subject to dust blowing and movements where on and off-site damage is likely without treatment.

Specifications

Temporary Methods

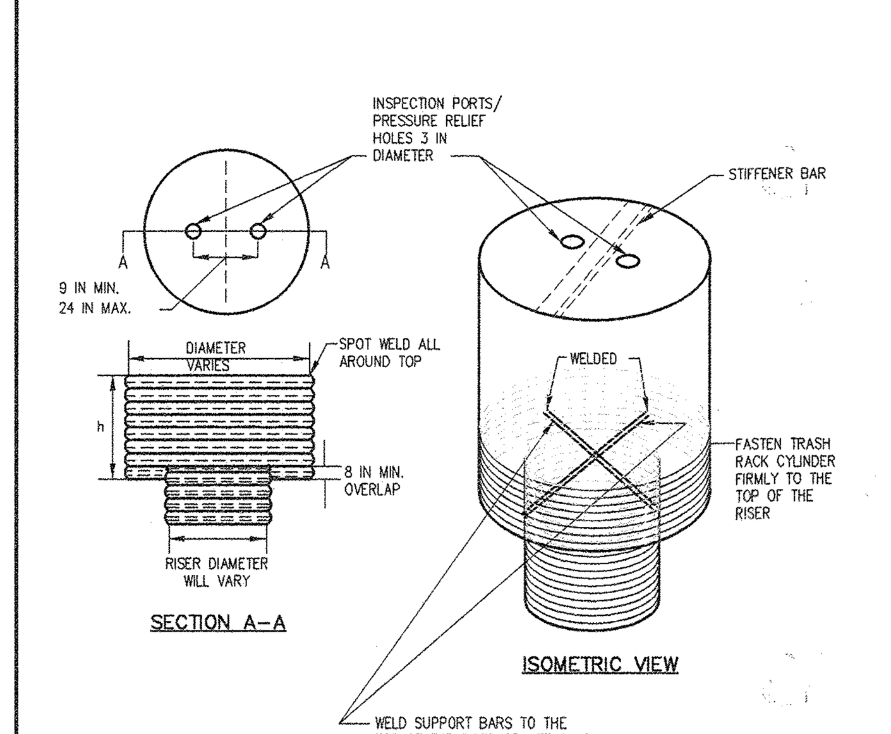
1. Mulches - See standards for vegetative stabilization with mulches only. Mulch should be crimped or tacked to prevent blowing.
2. Vegetative Cover - See standards for temporary vegetative cover.
3. Tillage - To roughen surface and bring clods to the surface. This is an emergency measure which should be used before soil blowing starts. Begin plowing on windward side of site. Chisel-type plows spaces about 12" apart, spring-toothed harrows, and similar plows are examples of equipment which may produce the desired effect.
4. Irrigation - This is generally done as an emergency treatment. Site is sprinkled with water until the surface is moist. Repeat as needed. At no time should the site be irrigated to the point that runoff begins to flow.
5. Barriers - Solid board fences, silt fences, burlap fences, straw bales, and similar material can be used to control air currents and soil blowing. Barriers placed at right angles to prevailing currents at intervals of about 10 times their height are effective in controlling soil blowing.
6. Calcium Chloride - Apply at rates that will keep surface moist. May need retreatment.

Permanent Methods

1. Permanent Vegetation - See standards for permanent vegetative cover, and permanent stabilization with sod. Existing trees or large shrubs may afford valuable protection if left in place.
2. Topsoiling - Covering with less erosive soil materials. See standards for topsoiling.
3. Stone - Cover surface with crushed stone or coarse gravel.

DETAIL G-2-3 CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE

STANDARD SYMBOL: TR



MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
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DETAIL G-2-3 CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE

STANDARD SYMBOL: TR

	TRASH RACK CYLINDER				MINIMUM TOP	
RISER DIAM. (IN)	DIAM. (IN)	THICKNESS (GAUGE)	h (IN)	MINIMUM SIZE SUPPORT BAR	THICKNESS (GAUGE)	STIFFENER
12	18	16	14	#6 REBAR	16	N/A
15	21	16	15	#6 REBAR	16	N/A
18	27	16	16	#6 REBAR	16	N/A
21	30	16	19	#6 REBAR	16	N/A
24	36	16	21	#6 REBAR	14	N/A
27	42	16	21	#6 REBAR	14	N/A
36	54	14	25	#8 REBAR	12	N/A
42	60	14	27	#8 REBAR	12	N/A
48	72	12	29	1¼ IN PIPE OR 1¼ x 1¼ x ¼ ANGLE	10	N/A
54	78	12	33	1¼ IN PIPE OR 1¼ x 1¼ x ¼ ANGLE	10	N/A
60	90	12	37	1½ IN PIPE OR 1½ x 1½ x ¼ ANGLE	8	N/A
66	96	10	41	2 IN PIPE OR 2 x 2 x 3/16 ANGLE	8	2 x 2 x ¼ ANGLE
72	102	10	44	2 IN PIPE OR 2 x 2 x 3/16 ANGLE	8	2½ x 2½ x ¼ ANGLE
78	114	10	47	2½ IN PIPE OR 2 x 2 x ¼ ANGLE	8	2½ x 2½ x ¼ ANGLE
84	120	10	50	2½ IN PIPE OR 2½ x 2½ x ¼ ANGLE	8	2½ x 2½ x 5/16 ANGLE

NOTE:
THE ABOVE TRASH RACK AND ANTI-VORTEX DEVICE INFORMATION IS FOR CORRUGATED METAL PIPE ONLY. CONCRETE RISERS MUST MEET THE REQUIREMENTS OF MD 378.

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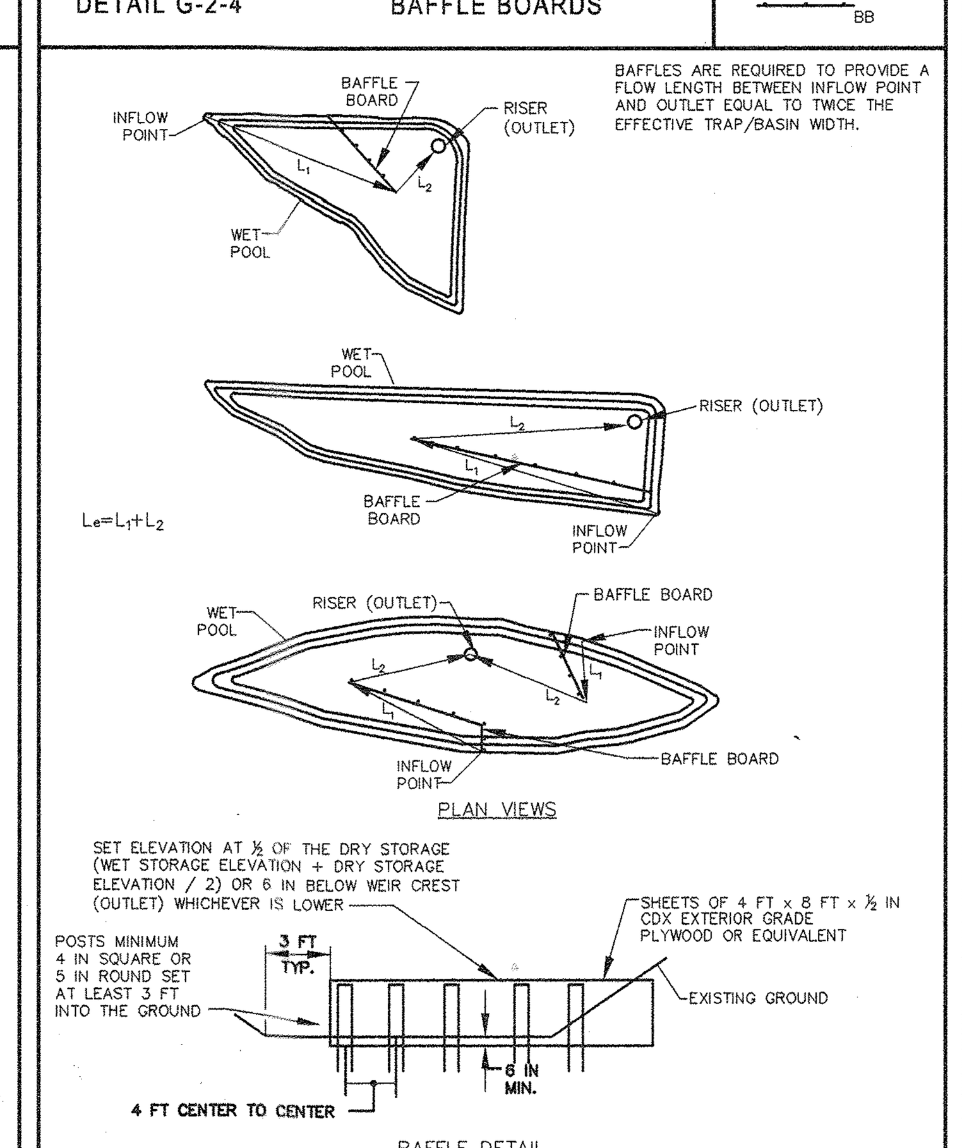
DETAIL G-2-4 BAFFLE BOARDS

STANDARD SYMBOL: BB

BAFFLES ARE REQUIRED TO PROVIDE A FLOW LENGTH BETWEEN INFLOW POINT AND OUTLET EQUAL TO TWICE THE EFFECTIVE TRAP/BASIN WIDTH.



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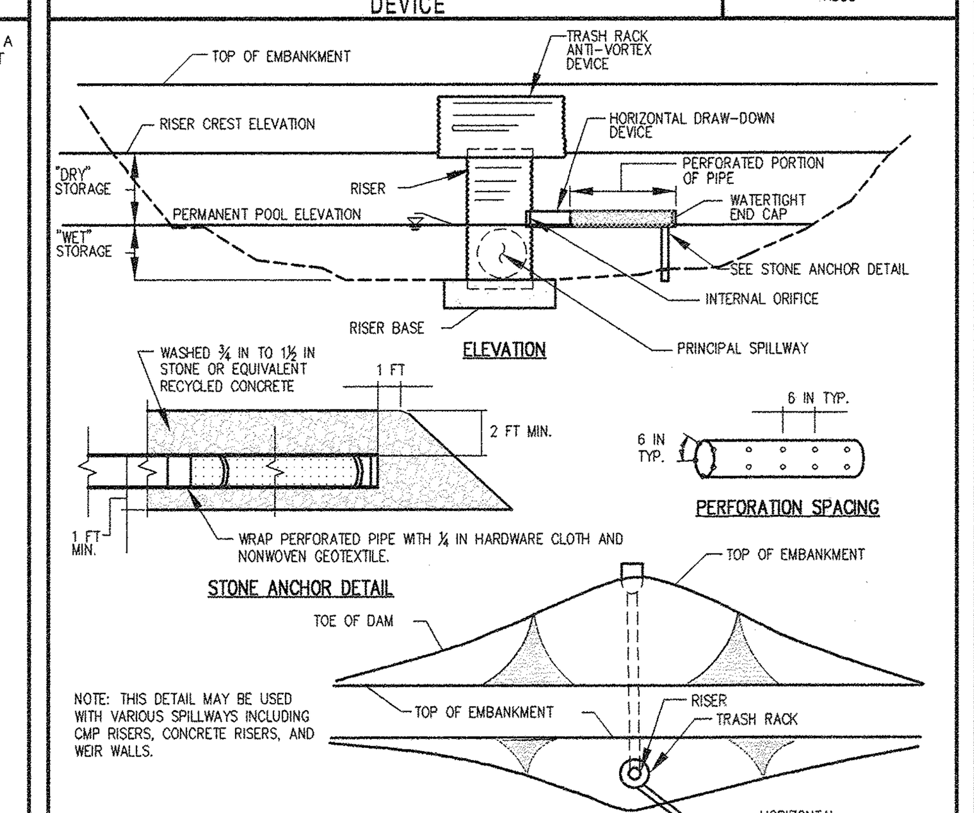
DETAIL G-2-6 SEDIMENT BASIN SCHEMATIC HORIZONTAL DRAW-DOWN DEVICE

STANDARD SYMBOL: HDDD



CONSTRUCTION SPECIFICATIONS

1. PERFORATE PIPE WITH 1 INCH DIAMETER PERFORATIONS SPACED 6 INCHES APART LONGITUDINALLY AND RADIALLY OR IN ACCORDANCE WITH APPROVED PLAN.
2. WRAP THE PERFORATED PORTION OF THE DRAW-DOWN DEVICE FIRST WITH ¼ INCH GALVANIZED HARDWARE CLOTH, THEN WITH NONWOVEN GEOTEXTILE. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS. DO NOT WRAP WITH MORE THAN ONE LAYER OF GEOTEXTILE.
3. AS AN ALTERNATE TO STONE ANCHORING, SECURE DRAW-DOWN DEVICE WITH TWO 1 INCH STEEL ANGLES SET 3 FEET MINIMUM INTO THE GROUND ATTACHED TO DRAW-DOWN DEVICE BY A 1 INCH WIDE GALVANIZED STEEL STRAP OR 12 GAUGE OR HEAVIER WIRE.
4. REMOVE SEDIMENT WHEN IT ACCUMULATES TO CLEANOUT ELEVATION (50% OF THE WET STORAGE DEPTH). DEPOSIT REMOVED SEDIMENT IN AN APPROVED AREA IN A SUCH A MANNER THAT IT WILL NOT ERODE. MAINTAIN WATER TIGHT CONNECTIONS. REPLACE GEOTEXTILE AROUND PERFORATED RISER IF DRY STORAGE VOLUME DOES NOT DRAW DOWN WITHIN 10 HOURS.

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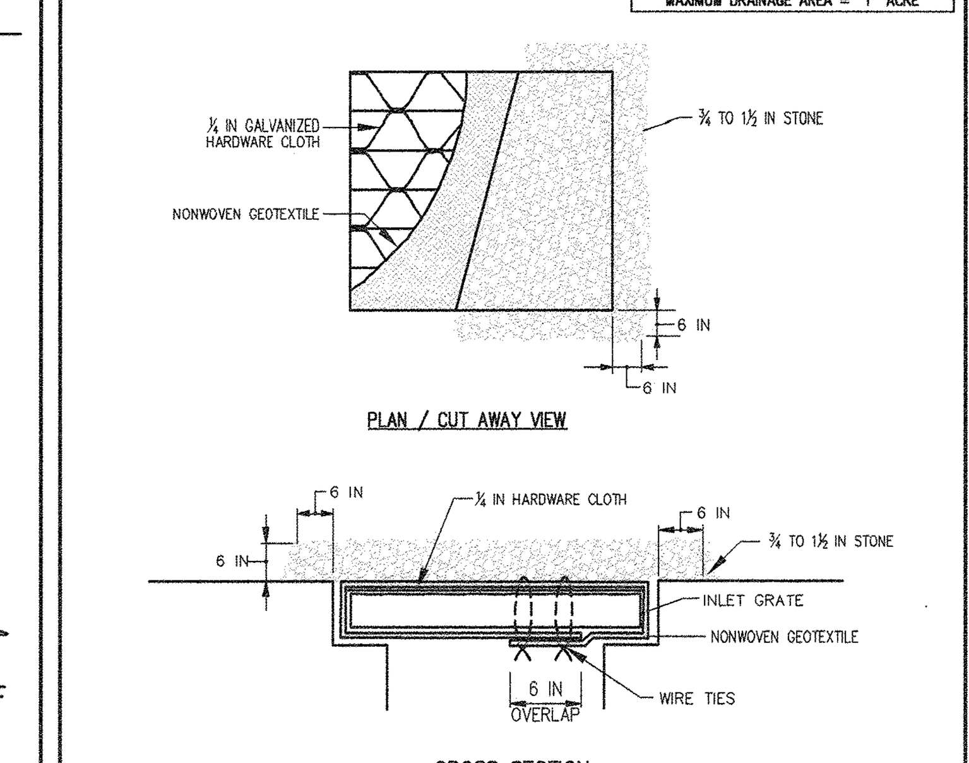
DETAIL E-9-2 AT-GRADE INLET PROTECTION

STANDARD SYMBOL: AGIP

MAXIMUM DRAINAGE AREA = 1 ACRE



CONSTRUCTION SPECIFICATIONS

1. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
2. LIFT GRATE AND WRAP WITH NONWOVEN GEOTEXTILE TO COMPLETELY COVER ALL OPENINGS. SECURE WITH WIRE TIES AND SET GRATE BACK IN PLACE.
3. PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE 6 INCHES THICK ON THE GRATE.
4. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
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GLW
PLANNING | ENGINEERING | SURVEYING
3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:	DRAWN BY:	CHECKED BY:
JRD	JRD	DEV

DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975, EXPIRATION DATE: MAY 26, 2020
1/2/19

STATE OF MARYLAND — CARLTON KENNETH GUTSCHICK — PROFESSIONAL ENGINEER — NO. 12975

SEDIMENT CONTROL NOTES and DETAILS

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS NOTED	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	51 OF 92

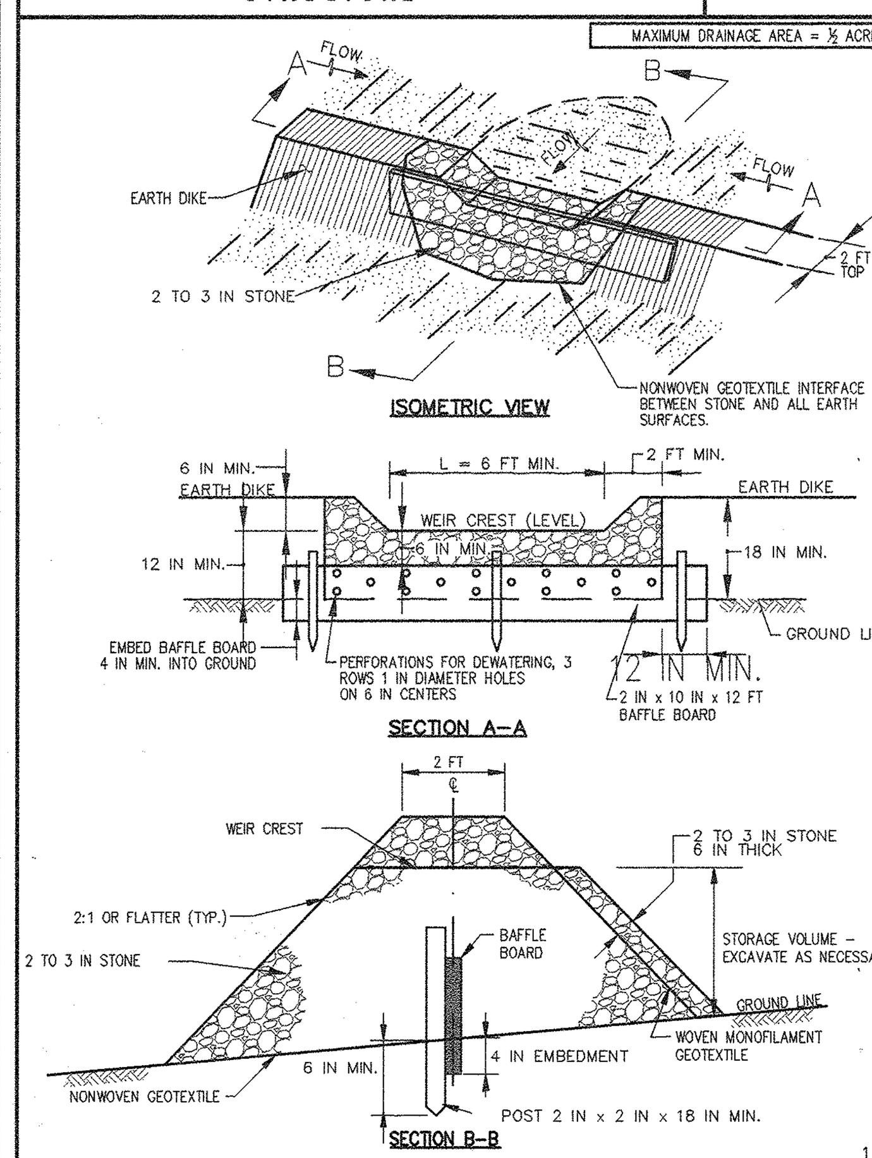
L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PH3)\13013_50-52_SC - Notes & Details.dwg, PLOTTED: 12/27/2018 4:48 PM, LAST SAVED: 12/27/2018 10:24 AM, PLOTTED BY: Jennifer R. Dicks

F 17-001

DETAIL E-7 TEMPORARY STONE OUTLET STRUCTURE

STANDARD SYMBOL
TSOS

MAXIMUM DRAINAGE AREA = ½ ACRE



1 OF 2

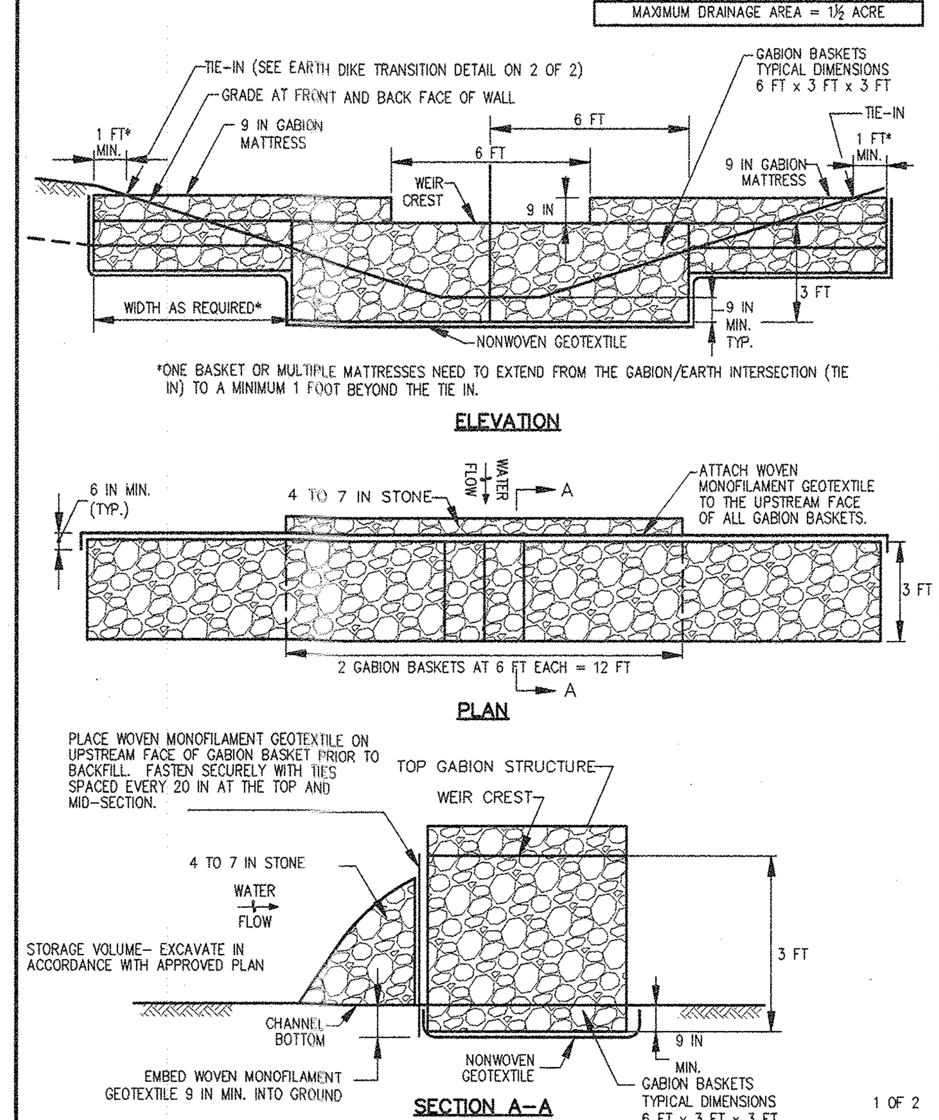
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-8 TEMPORARY GABION OUTLET STRUCTURE

STANDARD SYMBOL
TGOS

MAXIMUM DRAINAGE AREA = 1½ ACRE



1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

MGWC 1.4: DIVERSION PIPE

Temporary measure for dewatering in-channel construction sites

DESCRIPTION

The work should consist of installing flow diversion pipes in combination with sandbag or stone diversions when construction activities occur within the stream channel.

EFFECTIVE USES & LIMITATIONS

Diversion pipes with an insufficient flow capacity can cause the channel diversion to fail thereby resulting in severe erosion of the disturbed channel section under construction. Therefore, in-channel construction activities should occur only during periods of low flow.

MATERIAL SPECIFICATIONS

Materials for stream diversions should meet the following requirements:

- *Riprap*: Stone should be washed and have a minimum diameter of 6 inches (15 centimeters).
- *Sandbags*: Sandbags should consist of materials which are resistant to ultra-violet radiation, tearing, and puncture and should be woven tightly enough to prevent leakage of fill material (i.e., sand, fine gravel, etc.).
- *Sheeting*: Sheeting should consist of polyethylene or other material which is impervious and resistant to puncture and tearing.

INSTALLATION GUIDELINES

All erosion and sediment control devices including mandatory dewatering basins should be installed as the first order of business according to a plan approved by the WMA or local authority. Installation should proceed from upstream to downstream during low flow conditions. If necessary, silt fence or straw bales should be installed around the perimeter of the work area.

Diversion pipes with sandbag or stone barriers should be completed as follows (refer to Detail 1.4):

1. Sandbag/stone barriers should be sized and installed as detailed in MGWC 1.5: Sandbag/Stone Diversion. The materials should be sized to withstand baseflow velocities.
2. All excavated material should be deposited and stabilized in an approved area outside the 100-year floodplain unless otherwise authorized by the WMA.
3. Sediment-laden water from the construction area should be pumped to a dewatering basin.
4. The diversion pipe should have a minimum capacity sufficient to convey the 2-year flow for projects with a duration of two weeks or greater. For projects of shorter duration, the capacity of the pipe can be reduced accordingly.
5. If necessary, silt fence or straw bales should be installed around the perimeter of the work area.
6. Sediment control devices are to remain in place until all disturbed areas are stabilized and the inspecting authority approves their removal.

TEMPORARY INSTREAM CONSTRUCTION MEASURES — *MARYLAND DEPARTMENT OF THE ENVIRONMENT WATERWAY CONSTRUCTION GUIDELINES REVISED NOVEMBER 2000*

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MGWC 4.2: UTILITY CROSSING

Temporary in-stream construction

DESCRIPTION

The work should consist of installing erosion control devices in and adjacent to the construction of utility crossings.

INSTALLATION GUIDELINES

All erosion and sediment control devices, including dewatering basins, should be implemented as the first order of business according to a plan approved by the WMA or local authority. (See *the 1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control.*) The proposed construction sequence is as follows (refer to Detail 4.2):

1. The contractor should insure that a continuous perimeter control barrier is in place to minimize the amount of pollutants entering the flow. A diversion pipe as shown in MGWC 1.4: Diversion Pipe or other measure should be installed and sandbag or stone barriers as shown in MGWC 1.5: Sandbag/Stone Diversion should be constructed according to specifications to divert the streamflow.
2. Excavated topsoil and subsoil should be kept separate, placed on the upland side of the excavation, and replaced in their natural order.
3. All construction should take place during stream low flows. The length of construction time should be limited to a maximum of 5 consecutive days for each crossing.
4. All utility crossings should be placed a minimum of 3 feet (1 meter) beneath the stream bed unless an alternative section is specifically approved by the WMA. For instances where a 3-foot cover is not viable, two alternate stabilization options are given in the Detail 4.2. A low flow channel shall be constructed through all riprap placements across the stream bed.
5. The stream should be diverted by an approved temporary stream diversion, the construction area should be dewatered, and any disturbed banks should be stabilized. The contractor may elect to construct the utility crossing in two stages. In this case, a WMA approved flow barrier may be constructed to keep the construction area dry.
6. Once the crossing is completed, the diversion should be removed from upstream to downstream. Sediment control devices, including perimeter erosion controls, are to remain in place until all disturbed areas are stabilized in accordance with an approved sediment and erosion control plan and the inspection authority approves their removal.

STREAM CROSSINGS — *MARYLAND DEPARTMENT OF THE ENVIRONMENT WATERWAY CONSTRUCTION GUIDELINES REVISED NOVEMBER 2000*

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MGWC 1.2: PUMP-AROUND PRACTICE

Temporary measure for dewatering in-channel construction sites

DESCRIPTION

The work should consist of installing a temporary pump around and supporting measures to divert flow around in-stream construction sites.

IMPLEMENTATION SEQUENCE

Sediment control measures, pump-around practices, and associated channel and bank construction should be completed in the following sequence (refer to Detail 1.2):

1. Construction activities including the installation of erosion and sediment control measures should not begin until all necessary easements and/or right-of-ways have been acquired. All existing utilities should be marked in the field prior to construction. The contractor is responsible for any damage to existing utilities that may result from construction and should repair the damage at his/her own expense to the county's or utility company's satisfaction.
2. The contractor should notify the Maryland Department of the Environment or WMA sediment control inspector at least 5 days before beginning construction. Additionally, the contractor should inform the local environmental protection and resource management inspection and enforcement division and the provider of local utilities a minimum of 48 hours before starting construction.
3. The contractor should conduct a pre-construction meeting on site with the WMA sediment control inspector, the county project manager, and the engineer to review limits of disturbance, erosion and sediment control requirements, and the sequence of construction. The contractor should stake out all limits of disturbance prior to the pre-construction meeting so they may be reviewed. The participants will also designate the contractor's staging areas and flag all trees within the limit of disturbance which will be removed for construction access. Trees should not be removed within the limit of disturbance without approval from the WMA or local authority.
4. Construction should not begin until all sediment and erosion control measures have been installed and approved by the engineer and the sediment control inspector. The contractor should stay within the limits of the disturbance as shown on the plans and minimize disturbance within the work area whenever possible.
5. Upon installation of all sediment control measures and approval by the sediment control inspector and the local environmental protection and resource management inspection and enforcement division, the contractor should begin work at the upstream section and proceed downstream beginning with the establishment of stabilized construction entrances. In some cases, work may begin downstream if appropriate. The sequence of construction must be followed unless the contractor gets written approval for deviations from the WMA or local authority. The contractor should only begin work in an area which can be completed by the end of the day including grading adjacent to the channel. At the end of each work day, the work area must be stabilized and the pump around removed from the channel. Work should not be conducted in the channel during rain events.
6. Sandbag dikes should be situated at the upstream and downstream ends of the work area as shown on the plans, and stream flow should be pumped around the work area. The pump should discharge onto a stable velocity dissipater made of riprap or sandbags.

TEMPORARY INSTREAM CONSTRUCTION MEASURES — *MARYLAND DEPARTMENT OF THE ENVIRONMENT WATERWAY CONSTRUCTION GUIDELINES REVISED NOVEMBER 2000*

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C-4 STANDARDS AND SPECIFICATIONS

FOR

TEMPORARY STORM DRAIN DIVERSION

Definition

A temporary swale or pipe that redirects a storm drain system or outfall channel into a sediment trap or basin.

Purpose

To prevent sediment-laden water conveyed by the storm drain system from reaching a watercourse or off-site property.

Conditions Where Practice Applies

Where the discharge of a storm drain system can be effectively conveyed to a sediment trapping device.

One of the following practices or procedures must be used to temporarily divert the storm drain system:

1. Construction of a sediment trap or basin below a permanent storm drain outfall: the storm drain system outfalls into a temporary basin or trap constructed below the permanent outfall channel.
2. In-line diversion of storm drain at an inlet or manhole: this diversion requires installing a pipe stub in the side of a manhole or inlet and temporarily blocking the permanent outfall pipe from that structure. A temporary swale or pipe may be used to convey storm flow from the stub to a sediment trap or basin. Size the diversion swale or pipe based on the storm drain system design criteria (i.e., 10 year storm). This method may be used just above a permanent outfall or prior to connecting into an existing storm drain system.
3. Delay completion of the permanent storm drain outfall and temporarily divert storm flow into a sediment basin or trap: an earth dike, swale, or designed diversion can be used, depending on the drainage area, to direct flow into a sediment basin or trap.
4. Installation of a stormwater management basin early in the construction sequence: install temporary measures to allow use as a sediment basin. Because these structures are designed to receive storm drain outfalls, diversion should not be necessary.

Provide the following statement on the plans: Inlet protection is not required and should not be provided if storm drain diversions have been installed and are functioning properly.

Removal and Restoration

When the areas contributing sediment to the storm drain system have been stabilized, restore the system to its planned use. The following removal and restoration procedure must be included in the sequence of operations for the erosion and sediment control plan:

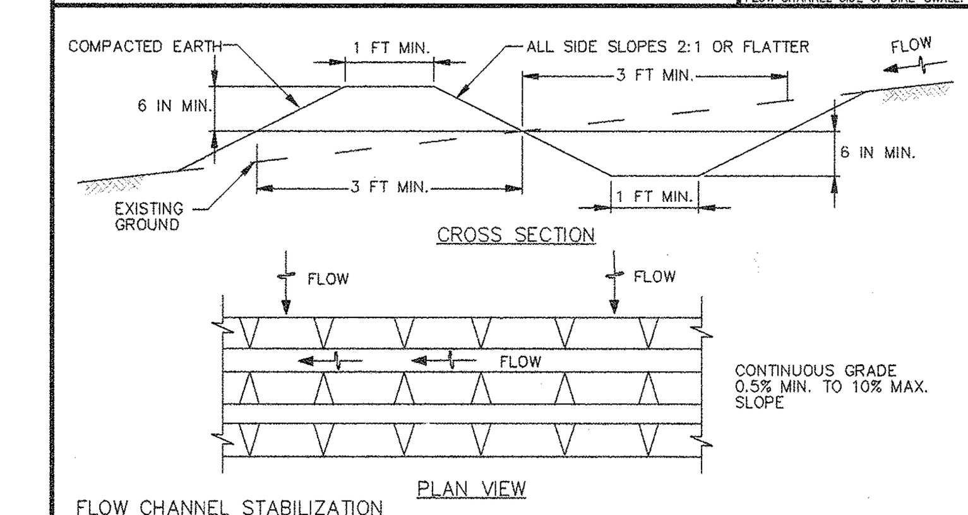
1. Flush the storm drain system prior to removal or conversion of the trap or basin to remove any accumulated sediment.
2. Establish a permanent stabilized outfall channel as noted on the plan.
3. For sites where an inlet was modified, plug the temporary pipe stub and open the permanent outfall pipe.
4. Restore the area to grades shown on the plan and stabilize with vegetative measures.

Maintenance

Water tight connections must be maintained. Accumulated sediment and debris must be removed. Positive drainage must be maintained.

DETAIL C-3 PERIMETER DIKE/SWALE

STANDARD SYMBOL
PDS-1
PLACE DESIGNATION (PDS-1 OR 2) ON FLOW CHANNEL SIDE OF DIKE-SWALE.



FLOW CHANNEL STABILIZATION

PDS–1 SEED AND MULCH AND TACK (DRAINING < 1 ACRE) (NOT ALLOWED FOR CLEAR WATER DIVERSION.)

PDS–2 SEED WITH SOIL STABILIZATION MATTING OR LINE WITH SOD (DRAINING BETWEEN 1 AND 2 ACRES)

NOTE: THE MAXIMUM DRAINAGE AREA FOR THIS PRACTICE IS 2 ACRES.

CONSTRUCTION SPECIFICATIONS

1. REMOVE AND DISPOSE OF ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SO AS NOT TO INTERFERE WITH PROPER FUNCTION OF DIKE/SWALE.
2. EXCAVATE OR SHAPE DIKE/SWALE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED. BANK PROJECTIONS OR OTHER IRREGULARITIES ARE NOT ALLOWED.
3. COMPACT FILL.
4. CONSTRUCT DIKE/SWALE ON AN UNINTERRUPTED, CONTINUOUS GRADE, ADJUSTING THE LOCATION DUE TO FIELD CONDITIONS AS NECESSARY TO MAINTAIN POSITIVE DRAINAGE.
5. PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.
6. STABILIZE DIKE/SWALE WITHIN 3 DAYS OF INSTALLATION. STABILIZE DIKE/SWALES USED FOR CLEAR WATER DIVERSION WITHIN 24 HOURS OF INSTALLATION.
7. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS, AND MAINTAIN POSITIVE DRAINAGE. KEEP PERIMETER DIKE/SWALE AND POINT OF DISCHARGE FREE OF EROSION AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.
8. UPON REMOVAL OF DIKE/SWALE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS OF REMOVAL STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, MULCH, OR AS SPECIFIED ON APPROVED PLAN.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-7 TEMPORARY STONE OUTLET STRUCTURE

STANDARD SYMBOL
TSOS

CONSTRUCTION SPECIFICATIONS

1. PROVIDE STORAGE VOLUME AS SPECIFIED ON APPROVED PLANS.
2. USE NONWOVEN GEOTEXTILE ON INTERFACE BETWEEN GROUND AND STONE.
3. PERFORATE BAFFLE BOARD WITH 3 ROWS OF 1 INCH DIAMETER HOLES 6 INCHES ON CENTER, EMBED A MINIMUM OF 4 INCHES INTO GROUND, AND EXTEND BAFFEL BOARD MINIMUM OF 12 INCHES INTO EARTH DIKE.
4. USE CLEAN 2 TO 3 INCH STONE OR EQUIVALENT RECYCLED CONCRETE. PLACE WOVEN MONOFILAMENT GEOTEXTILE ON UPSTREAM FACE AND COVER WITH A MINIMUM OF 6 INCHES OF ADDITIONAL STONE.
5. USE NONWOVEN AND WOVEN MONOFILAMENT GEOTEXTILES AS SPECIFIED IN SECTION H-1 MATERIALS.
6. SET WEIR CREST OF STONE 6 INCHES LOWER THAN THE TOP OF EARTH DIKE. USE MINIMUM LENGTH OF 6 FEET FOR WEIR CREST.
7. REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO WITHIN 6 INCHES OF WEIR CREST. REPLACE GEOTEXTILE AND STONE FACING WHEN STRUCTURE CEASES TO DRAIN. MAINTAIN LINE, GRADE, AND CROSS SECTION.
8. UPON REMOVAL OF STONE OUTLET STRUCTURE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

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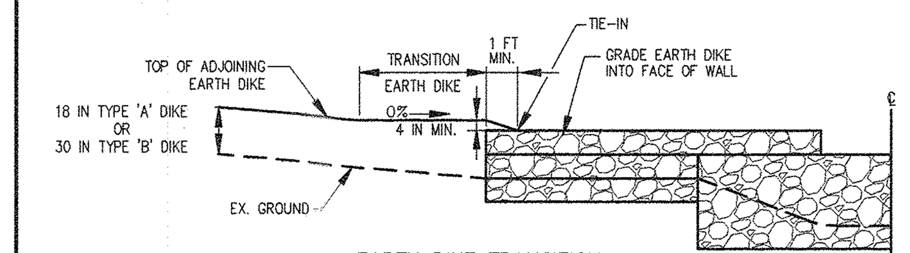
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-8 TEMPORARY GABION OUTLET STRUCTURE

STANDARD SYMBOL
TGOS



EARTH DIKE TRANSITION

NOTES:

1. PROVIDE TRANSITION LENGTH AND HEIGHT AS SPECIFIED ON PLAN. HEIGHT OF TRANSITION EARTH DIKE MUST EXCEED 4 INCH MINIMUM FREEBOARD ABOVE TOP OF GABION AND EXTEND AT THIS ELEVATION UNTIL IT INTERCEPTS THE TOP OF ADJOINING EARTH DIKE.
2. PROVIDE POSITIVE DRAINAGE ALONG EARTH DIKE TO GABION OUTLET STRUCTURE.
3. COMPACT FILL.
4. SHAPE EARTH DIKE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED ON PLAN. BANK PROJECTIONS OR IRREGULARITIES ARE NOT ALLOWED.

CONSTRUCTION SPECIFICATIONS

1. PROVIDE STORAGE VOLUME AS SPECIFIED ON APPROVED PLANS.
2. USE BASKETS MADE OF 11 GAUGE WIRE OR HEAVIER.
3. USE NONWOVEN AND WOVEN MONOFILAMENT GEOTEXTILES AS SPECIFIED IN SECTION H–1 MATERIALS.
4. INSTALL GABIONS IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.
5. EMBED THE GABION OUTLET STRUCTURE INTO THE SOIL A MINIMUM OF 9 INCHES. PROVIDE NONWOVEN GEOTEXTILE UNDER ALL GABIONS.
6. FILL GABION BASKETS WITH CLEAN 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE WITHOUT REBAR OR WIRE MESH.
7. MAKE THE WEIR CREST OF THE GABION OUTLET STRUCTURE 9 INCHES LOWER THAN THE TOP OF THE ADJACENT GABIONS.
8. PROVIDE A MINIMUM WEIR CREST OF 6 FEET.
9. ATTACH WOVEN MONOFILAMENT GEOTEXTILE TO THE UPSTREAM FACE OF GABION BASKETS AND COVER WITH 4 TO 7 INCH STONE.
10. REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO WITHIN 12 INCHES OF THE WEIR CREST. REPLACE GEOTEXTILE AND STONE FACING WHEN STRUCTURE CEASES TO FUNCTION. MAINTAIN LINE, GRADE, AND CROSS SECTION.
11. UPON REMOVAL OF GABION OUTLET STRUCTURE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

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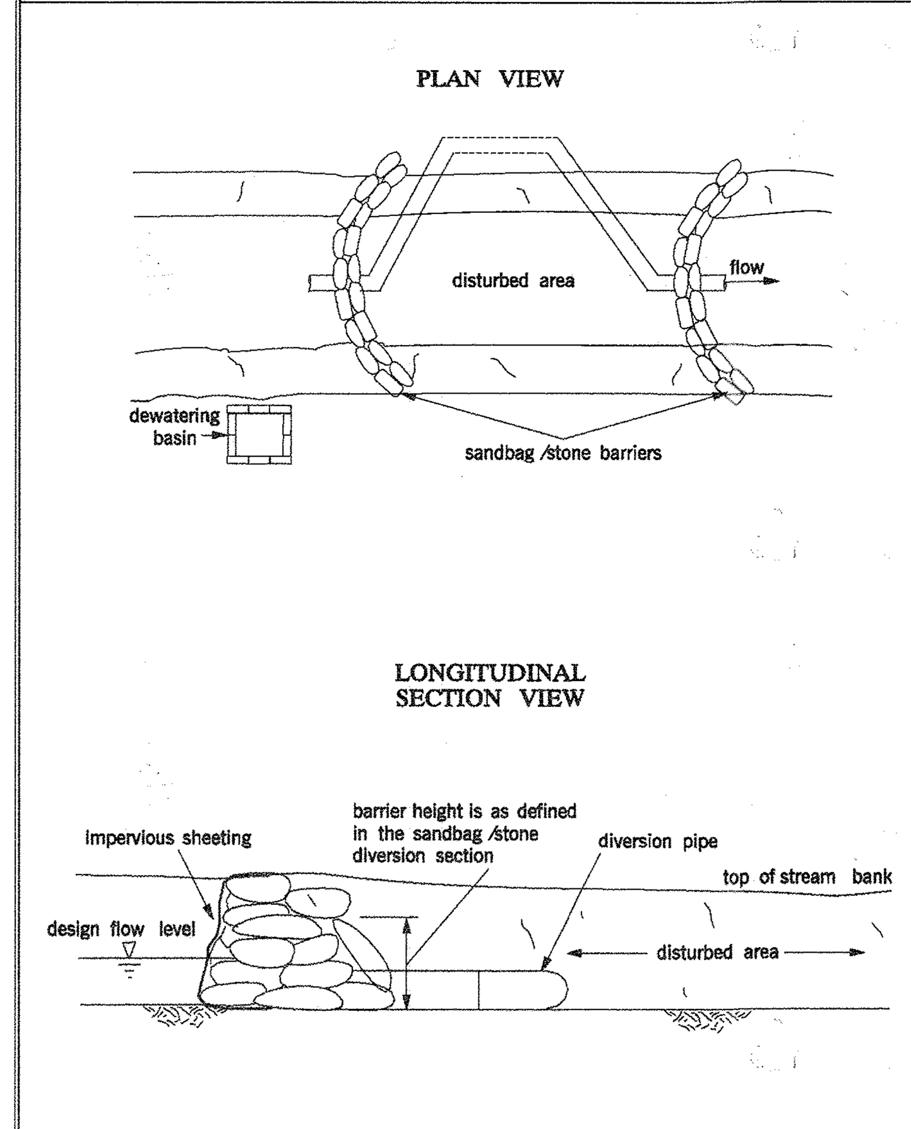
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

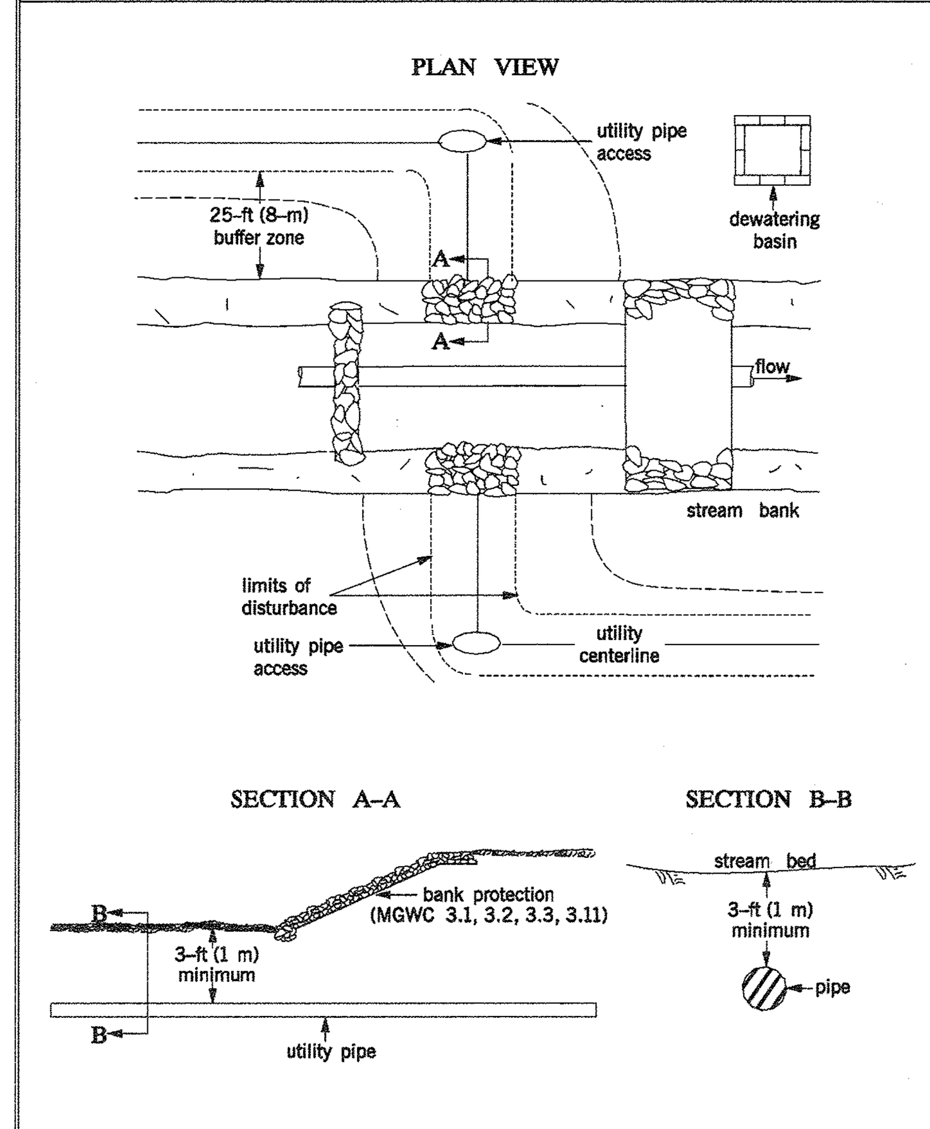
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Maryland's Guidelines To Waterway Construction DETAIL 1.4: DIVERSION PIPE



TEMPORARY INSTREAM CONSTRUCTION MEASURES | REVISED NOVEMBER 2000 PAGE 1.4 - 2 | MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Maryland's Guidelines To Waterway Construction DETAIL 4.2(a): UTILITY CROSSING



STREAM CROSSINGS | PAGE 4.2 - 2 | MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

MGWC 1.2: PUMP-AROUND PRACTICE

7. Water from the work area should be pumped to a sediment filtering measure such as a dewatering basin, sediment bag, or other approved source. The measure should be located such that the water drains back into the channel below the downstream sandbag dike.
8. Traversing a channel reach with equipment within the work area where no work is proposed should be avoided. If equipment has to traverse such a reach for access to another area, then timber mats or similar measures should be used to minimize disturbance to the channel. Temporary stream crossings should be used only when necessary and only where noted on the plans or specified. (*See Section 4, Stream Crossings, Maryland Guidelines to Waterway Construction*).
9. All stream restoration measures should be installed as indicated by the plans and all banks graded in accordance with the grading plans and typical cross- sections. All grading must be stabilized at the end of each day with seed and mulch or seed and matting as specified on the plans.
10. After an area is completed and stabilized, the clean water dike should be removed. After the first sediment flush, a new clean water dike should be established upstream from the old sediment dike. Finally, upon establishment of a new sediment dike below the old one, the old sediment dike should be removed.
11. A pump around must be installed on any tributary or storm drain outfall which contributes baseflow to the work area. This should be accomplished by locating a sandbag dike at the downstream end of the tributary or storm drain outfall and pumping the stream flow around the work area. This water should discharge onto the same velocity dissipater used for the main stem pump around.
12. If a tributary is to be restored, construction should take place on the tributary before work on the main stem reaches the tributary confluence. Construction in the tributary, including pump around practices, should follow the same sequence as for the main stem of the river or stream. When construction on the tributary is completed, work on the main stem should resume. Water from the tributary should continue to be pumped around the work area in the main stem.
13. The contractor is responsible for providing access to and maintaining all erosion and sediment control devices until the sediment control inspector approves their removal.
14. After construction, all disturbed areas should be regraded and revegetated as per the planting plan.

TEMPORARY INSTREAM CONSTRUCTION MEASURES — *MARYLAND DEPARTMENT OF THE ENVIRONMENT WATERWAY CONSTRUCTION GUIDELINES REVISED NOVEMBER 2000*

PAGE 1.2 - 2

SEQUENCE OF CONSTRUCTION

NOTE:
CL INDICATES CENTERLINE
CWD INDICATES CLEANWATER DIVERSION DIKES
ED INDICATES EARTH DIKES
SSF INDICATES SUPER SILT FENCE
SCE INDICATES STONE CONSTRUCTION ENTRANCE
AGIP INDICATES AT GRADE INLET PROTECTION
CIP INDICATES CURB INLET PROTECTION

when working in the area of the streams and the non-tidal wetlands, the contractor must use the best manangement practices shown on this sheet of the plan set.

⚠1
1. Obtain grading permit. (1 day)
2. Arrange for an on-site pre-construction meeting w/Sediment Control Inspector. (1 day)

Phase A

The construction of improvements in the area of Lots 178-202, 206-218 and 241-266. It also puts on grade Westmount Pkwy. Templeton Ln., Carleton Ln., Findley Ln., Dudley Ln., portion of Carey Ct., construction of the arch span at centerline sta. 46+75 of Westmount Pkwy. and the stream mitigation work.

1. Construct stone construction entrance near centerline sta. 46+00 (1 day)
2. Install Tiger Dam diversion devices as shown on these plans to contain runoff from 2yr. storm through work area. (2 days)
3. Install Cleanwater diversion devices as shown on the inset on sheet 35. (1 week)
4. Begin excavation for footers & piles. Contractor shall have a pump w/a filter bag in the event the trench needs de-watered. (1 week)
5. Contractor is to install arch span & headwall in accordance w/the specifications shown on sheets 83 & 84 of this plan set. (2 mo.)
6. Once arch span is constructed, the Tiger Dam diversion devices can be removed. Contractor is to stabilize any disturbed areas immediately. (1 week)
7. Prior to the placement of fill around the arch span the contractor is to install the four temporary stone outlet structures & earth dikes as shown sht. 35. The earth dikes need to be constructed starting at downstream end & working uphill. (2 weeks)
8. As the fill progresses in area of the arch span and access to the stream mitigation can be achieved, begin the stream channel improvements as shown on sheets 85-87 of this plan set. Once the grades to install the utilities has been achieved, install the storm drains per these plans and the water and sewer per contract #24-4878-D. The stream mitigation improvements can be performed concurrent to the remaining of the Phase 'A' work as long as the disturbed area does not exceed 20 acres. (6 months)
9. INSTALL THE SILT FENCE DOWNHILL OF THE SEWER RUNS MH 79A TO MH 77. SHOWN AS INITIAL LOCATION ON SHEET 35 AND INSTALL THIS PORTION OF THE SEWER MAIN. (1 WEEK)
10. AFTER THE INSTALLATION OF THE SEWER IN THIS AREA IS COMPLETE, RELOCATE THE SSF TO ITS FINAL LOCATION AS SHOWN ON SHEET 35. (3 DAYS)
11. INSTALL SEDIMENT BASINS 1-3 AND SEDIMENT TRAP 6.
12. INSTALL EARTH DIKES 1, 2, 9, 18, 21 AND 22 BEGINNING AT THE DOWNSTREAM END AND WORKING UPHILL (2 WEEKS)
13. WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, BEGIN CLEARING, GRUBBING AND MASS GRADING (1 MONTH)
14. AS THE MASS GRADING PROGRESSES AND THE GRADES ALLOW, INSTALL THE STORM DRAINS PER THIS PLAN AND THE WATER & SEWER PER 24-4878-D.WITHIN THE LIMITS OF PHASE A IF AT ANY TIME PONDING SHOULD OCCUR PRIOR TO AN INLET BEING INSTALLED, THE CONTRACTOR IS TO "CUT IN" A SWALE TO ALLOW THE RUNOFF TO DRAIN TO A PERMIETER DEVICE. THE CONTRACTOR MAY HAVE TO USE EARTHEN BERMS INITIALLY, WHICH WILL NEED TO BE CONVERTED TO ASPHALT ONCE THE BASE PAVING HAS BEENPLACED TO CONTINUE DIRECTING THE RUNOFF TO THE INLETS OR PERIMETER DEVICES THAT WERE INTENDED TO RECIEVE THEM. ANY SEDIMENT CONTROL DEVICE THAT IS DAMAGED AS A RESULT OF UTILITY INSTALLATION IS TO BE REPAIRED IMMEDIATELY (1 MONTH)
15. ANY SURPLUS GENERATED BY THE MASS GRADING UNDER THIS PHASE WILL BE PLACED IN A STOCKPILE FOR FILL AREAS UNDER PHASE B OR FOR BACKFILLING TRAPS AND BASINS.
16. INSTALL CURB AND GUTTER, SIDEWALKS AND BASE PAVING ALONG WESTMOUNT PARKWAY FROM CENTERLINE 44+70 TO 49+31 (1 MONTH)
17. FINE GRADE THIS AREA OF THE SITE AND STABILIZE ALL AREAS IN ACCORDANCE WITH THE PERMANENT SEEDING SPECIFICATIONS. THE CONTRACTOR IS TO WRAP THE STOCKPILES WITH SF TO PROTECT RECENTLY STABILIZED AREAS (2 WEEKS)
18. THE MICRO BIO-RETENTION FACILITIES ARE NOT TO BE CONSTRUCTED AT THIS TIME

PHASE B

UNDER THIS PHASE LOTS 174-198 AND 219 THRU 240 WILL BE PLACED ON GRADE AS WELL AS THREE GRACES ROAD, WALPOLE WAY, AND THE REMAINDER OF CAREY COURT

1. THE AREA INDICATED ON SHEET 34 WITHIN THE LIMITS OF PHASE A THAT MUST BE STABILIZED PRIOR TO PROGRESSING TO PHASE B, NEEDS TO BE STABILIZED.
2. INSTALL CWD's 24 THRU 28 AND TEMPORARY SWALES TS-1 AND TS-2. (1 WEEK)
3. INSTALL THE STORM DRAIN RUN FROM I-203 TO ES 200. (1 WEEK)
4. GRADE THE SWALE ALONG THE SOUTHERN MOST BOUNDARY OF THE SITE AS SHOWN ON SHEET 38. STABILIZE THE SWALE IMMEDIATELY WITH SOD (1 WEEK)
5. INSTALL THE SUMP INLET PROTECTION AT I-201 AND I-203. (1 DAY)
6. WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, COMPLETE THE GRADING AROUND I-201 AND I-203 TO DIVERT THE OFF SITE RUNOFF TO THOSE STRUCTURES AND REMOVE TS-1 AND TS-2. (1 WEEK)
7. INSTALL SEDIMENT BASIN 4 AND TRAPS 5 AND 7. CONTRACTOR IS TO INSPECT TRAP 6 WHICH WAS INSTALLED UNDER PHASE A AND MAKE ANY NECESSARY REPAIRS (1 MONTH)
8. INSTALL EARTH DIKES 3 THRU 11 BEGINNING AT THE DOWNSTREAM END AND WORKING UPHILL (2 WEEKS)
9. WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, BEGIN CLEARING, GRUBBING AND MASS GRADING (1 MONTH)
10. AS THE MASS GRADING PROGRESSES AND THE GRADES ALLOW INSTALL THE STORM DRAINS PER THIS PLAN AND THE WATER AND SEWER PER 24-487-8-D WIHTIN THE LIMITS OF PHASE B. IF AT ANY TIME PONDING SHOULD OCCUR PRIOR TO AN INLET BEING INSTALLED, THE CONTRACTOR IS TO "CUT IN" A SWALE TO ALLOW THE RUNOFF TO DRAIN TO A PERIMETER DEVICE. THE CONTRACTOR MAY ALSO HAVE TO USE EARTHEN BERMS INITIALLY, WHICH WILL NEED TO BE CONVERTED TO ASPHALT ONCE THE BASE PAVING HAS BEEN PLACED TO CONTINUE TO DIRECT THE RUNOFF TO THE INLETS OR PERIMETER DEVICES THAT WERE INTENDED TO REPLACE THEM. ANY SEDIMENT CONTROL DEVCE THAT IS DAMAGED AS A RESULT OF THE INSTALLATION OF UTILITIES IS TO BE REPAIRED IMMEDIATELY (1 MONTH)
11. ANY SURPLUS GENERATED BY THE MASS GRADING UNDER THIS PHASE WILL BE PLACED UNDER PHASES C OR D, OR FOR BACKFILLING TRAPS AND BASINS.
12. INSTALL CURB AND GUTTER, SIDEWALKS AND BASE PAVING IN THE FOLLOWING AREAS: ALL OF THREE GRACES ROAD, WALPOLE WAY, CAREY COURT, DUDLEY LANE, FINDLEY LANE AND TEMPLETON LANE. WESTMOUNT PARKWAY FROM CENTERLINE STATION 49+31 TO 62+00 CAN HAVE CURB & GUTTER, SIDEWALK AND BASE PAVING INSTALLED AS WELL (1 MONTH)
13. FINE GRADE THIS AREA OF THE SITE AND STABILIZE ALL AREAS IN ACCORDANCE WITH THE PERMANENT SEEDING SPECIFICATIONS.THE CONTRACTOR IS TO WRAP THE STOCKPILES WITH SF TO PROTECT RECENTLY STABILIZED AREAS (2 WEEKS)
14. THE MICRO BIO RETENTION FACILITIES ARE NOT TO BE CONSTRUCTED AT THIS TIME.

PHASE C

UNDER THIS PHASE AREAS OF FUTURE PHASE 4 WILL BE MASS GRADED. SOME PAVING WITHIN WESTMOUNT PARKWAY WILL BE PERFORMED. NO UTILITIES WILL BE INSTALLED WITH THIS PHASE

1. INSTALL SEDIMENT TRAP 12 AND 8 AND TGOS#1. THE CONTRACTOR IS TO INSPECT SEDIMENT BASIN 3 WHICH WAS INSTALLED AS PART OF PHASE A AND MAKE ANY NECESSARY REPAIRS (2 WEEKS)
2. INSTALL EARTH DIKES 12, 17 THRU 20 AND 24-30 BEGINNING AT THE DOWNSTREAM END AND WORKING UPHILL (2 WEEKS)
3. WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, BEGIN CLEARING, GRUBBING AND MASS GRADING (1 MONTH)
4. ANY SURPLUS GENERATED BY THE MASS GRADING UNDER THIS PHASE WILL BE PLACED IN A STOCKPILE FOR FILL AREAS UNDER PHASE D, OR FOR BACKFILLING TRAPS AND BASINS.
5. STABILIZE ALL AREAS IN ACCORDANCE WITH THE PERMANENT SEEDING SPECIFICATIONS. THE CONTRACTOR IS TO WRAP THE STOCKPILES WITH SF TO PROTECT RECENTLY STABILIZED AREAS (2 WEEKS)
6. THE MICRO BIO-RETENTION FACILITIES ARE NOT TO BE CONSTRUCTED AT THIS TIME

PHASE D

UNDER THIS PHASE AREAS OF FUTURE PHASE 4 WILL BE MASS GRADED. NO PAVING OR UTILITY INSTALLATION WILL BE PERFORMED.

1. INSTALL SEDIMENT TRAPS 9 AND 10 AND SEDIMENT BASIN 11 (1 MONTH)
2. INSTALL EARTH DIKES 13 THRU 15, 23 AND THE REMAINDER OF 12 BEGINNING AT THE DOWNSTREAM END AND WORKING UPHILL (2 WEEKS)
3. WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, BEGIN CLEARING, GRUBBING AND MASS GRADING (1 MONTH)
4. ANY SURPLUS GENERATED BY THE MASS GRADING UNDER THIS PHASE WILL BE PLACED IN A STOCKPILE FOR BACKFILLING TRAPS AND BASINS.
5. STABILIZE ALL AREAS IN ACCORDANCE WITH THE PERMANENT SEEDING SPECIFICATIONS. THE CONTRACTOR IS TO WRAP THE STOCKPILES WITH SF TO PROTECT RECENTLY STABILIZED AREAS (2 WEEKS)

FINAL CONSTRUCTION ITEMS

THE CONTRACTOR MUST GO BACK INTO THE LOT AREAS AND STABILIZE ANY REMAINING DISTURBED AREAS.

6. WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, BEGIN REMOVING ED'S AND CWD'S. THE CONTRACTOR IS TO STABILIZE ANY DISTURBED AREAS IMMEDIATELY (1 MONTH)
7. FLUSH THE STORM DRAIN SYSTEMS.
8. AGAIN, WITH THE SEDIMENT CONTROL INSPECTOR'S PERMISSION, BEGIN BACKFILLING THE SEDIMENT TRAPS AND BASINS WITH THE MATERIAL THAT WAS STOCKPILED WITH EACH PHASE. THE CONTRACTOR IS TO STABILIZE ANY DISTURBED AREAS IMMEDIATELY (1 MONTH)
9. ONCE ALL OF THE CONTRIBUTING AREAS HAVE BEEN STABILIZED AND PERMISSION HAS BEEN OBTAINED FROM THE INSPECTOR, CONSTRUCT THE MICRO BIO-RETENTION FACILITIES (2 MONTHS)

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION, CONTROL, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIORNMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

M. Jimmy Rutter — 1/2/19
SIGNATURE OF DEVELOPER/BUILDER — DATE

ENGINEER'S CERTIFICATE

"I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

[signature] — 1/2/19
ENGINEER'S SIGNATURE — DATE

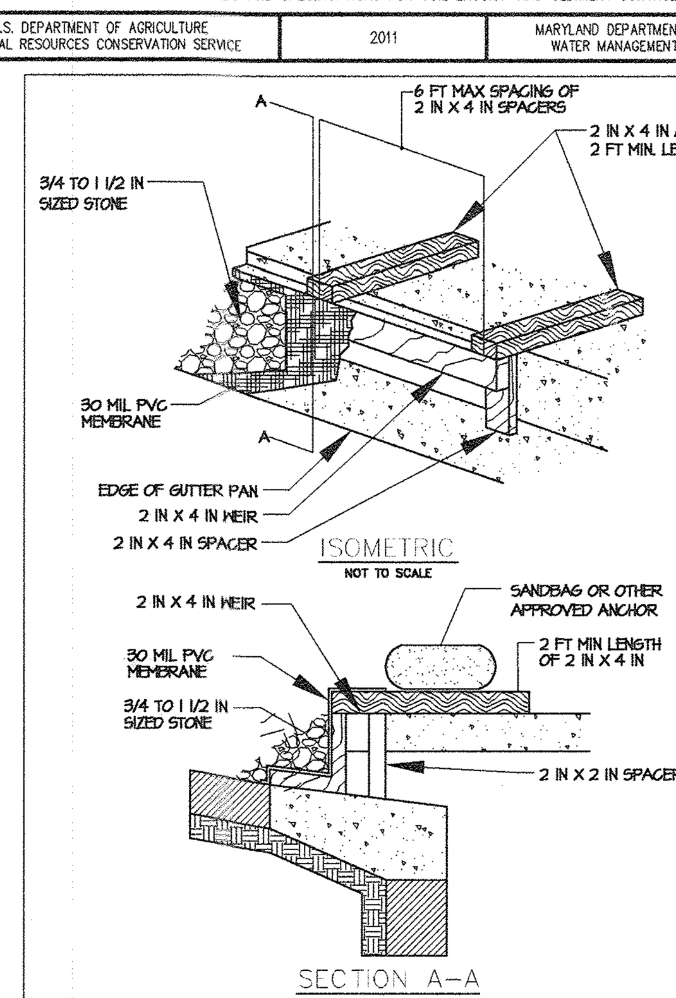
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[signature] — 1/29/2019
Chief, Bureau of Highways — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

[signature] — 6-27-19
Chief, Division of Land Development — Date

[signature] — 6.24.19
Chief, Development Engineering Division — Date



INLET BLOCKING DETAIL

This Development Plan is approved for Soil Erosion and Sediment Control by the Howard Soil Conservation District.

[signature] — 1/9/18
Howard S.C.D. — Date

BEST MANAGEMENT PRACTICES
FOR WORKING IN NON-TIDAL WETLAND, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS

1. NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILES OR STORED IN NON-TIDAL WETLANDS, NON-TIDAL WETLAND BUFFERS, WATERWAYS, OR 100-YEAR FLOODPLAIN.
2. PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NON-TIDAL WETLANDS, NON-TIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
3. DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.
4. PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NON-TIDAL WETLANDS, NON-TIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
5. REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NON-TIDAL WETLANDS, NON-TIDAL WETLAND BUFFERS, OR WATERWAYS, OR PERMANENT MODIFICATION OF THE 100-YEAR FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
6. RECTIFY ANY NON-TIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS OR 100-YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.

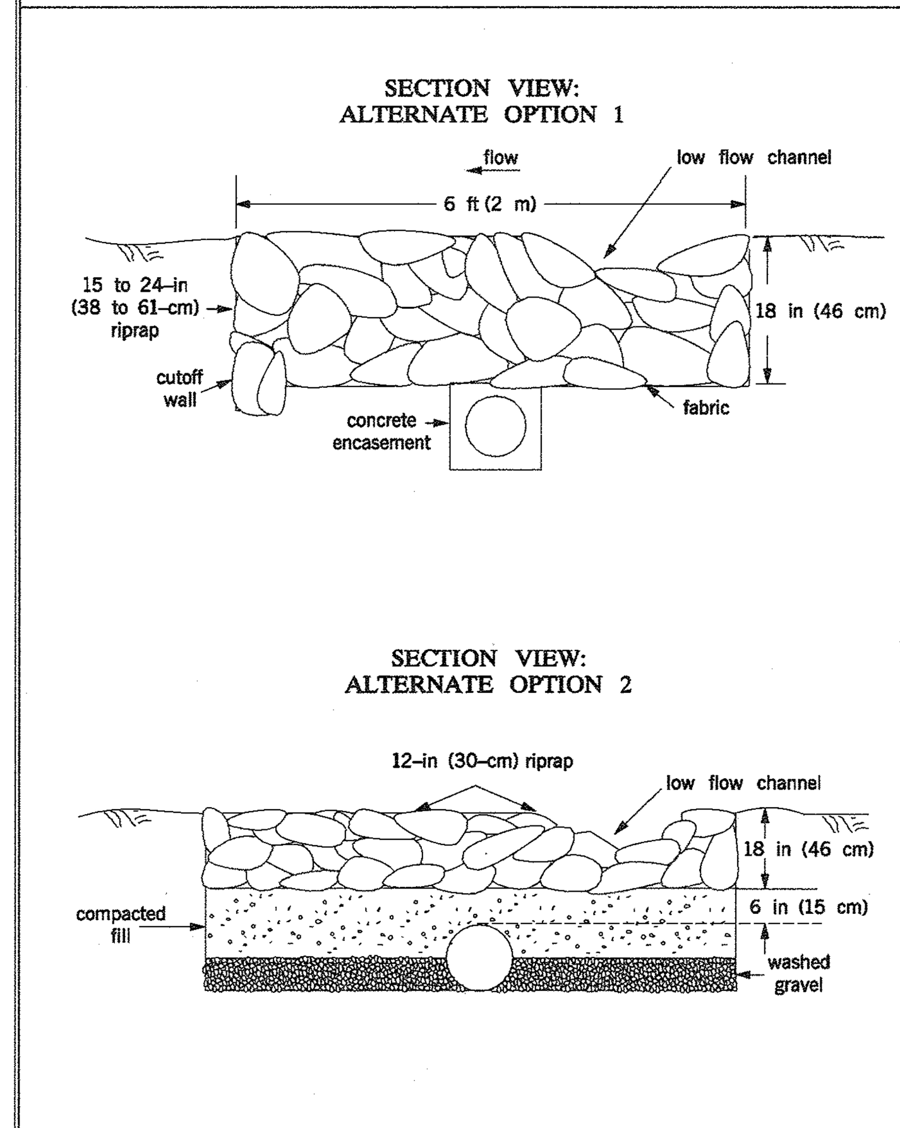
ALL STABILIZATION IN THE NON-TIDAL WETLAND AND NON-TIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES:

ANNUAL RYE GRASS (LOLIUM MULTIFLORUM)
MILLET (SETARIA ITALICA)
BARLEY (HORDEUM SPECIES)
OATS (SP.)
RYE (SECALE CEREALE)

THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NON-TIDAL WETLANDS AND WATERWAYS DIVISION. KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.

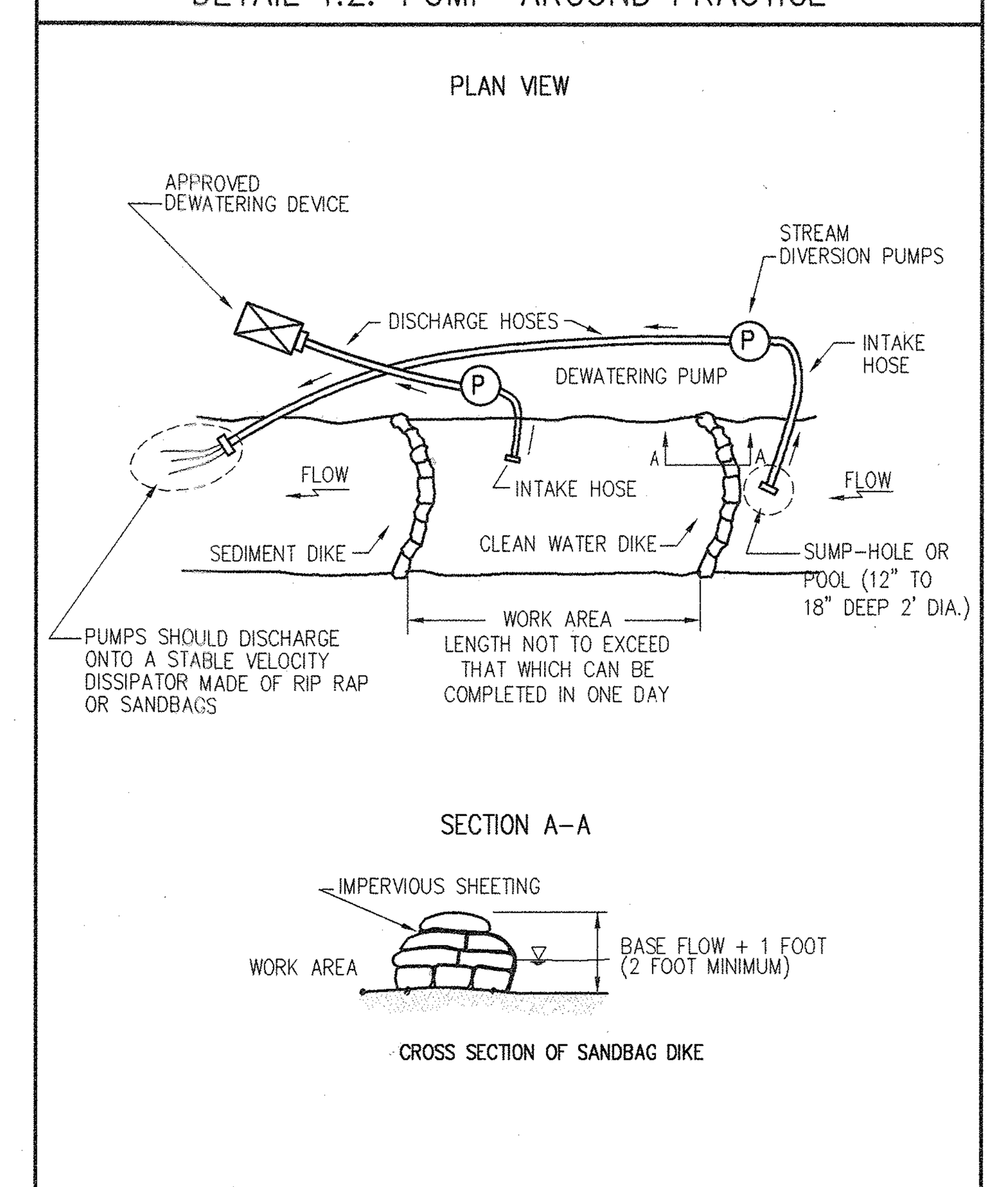
8. AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST-CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
9. TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM.
USE I WATERS: IN STREAM WORK SHALL BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.
10. STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
11. CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.

Maryland's Guidelines To Waterway Construction DETAIL 4.2(b): UTILITY CROSSING



STREAM CROSSINGS | REVISED NOVEMBER 2000 PAGE 4.2 - 3 | MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

MARYLAND'S GUIDELINES TO WATERWAY CONSTRUCTION DETAIL 1.2: PUMP-AROUND PRACTICE



TEMPORARY INSTREAM CONSTRUCTION MEASURES | REVISED NOVEMBER 2000 PAGE 1.2 – 3 | MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

GLW
PLANNING | ENGINEERING | SURVEYING
3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY: JRD
DRAWN BY: JRD
CHECKED BY: DEV

DATE	REVISION	BY	APP'R.
2020-4-22	⚠1 Rev. S.O.C. to acknowlege the stream mitigation work under ph. A. indicate where add'l. info. can be found w/in plan set & rev. address	klp	

PREPARED FOR: ⚠1
WESTMOUNT DEVELOPMENT CORPORATION
307 International Circle,
Suite 130
Hunt Valley, MD 21030
Attn.: Robert Goodier
410-487-4487

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975, EXPIRATION DATE: MAY 26, 2020
1/2/19

STATE OF MARYLAND — CARLTON KENNETH GUTSCHICK — NO. 12975 — PROFESSIONAL ENGINEER

SEDIMENT CONTROL NOTES and DETAILS

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS NOTED	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	52 OF 92

F 17-001

L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PH3)\13013_50-52_SC - Notes & Details.dwg, PLOTTED:12/27/2018 4:48 PM, LAST SAVED:12/27/2018 10:24 AM, PLOTTED BY: Jennifer R. Dicks

SOIL SYMBOL	SOIL DESCRIPTION	SOIL TYPE
GsB	GLADSTONE LOAM, 3 to 8 PERCENT SLOPES	B
GsC	GLADSTONE LOAM, 8 to 15 PERCENT SLOPES	B
GmB	GLENVILLE SILT LOAM, 3 to 8 PERCENT SLOPES	C
GmC	GLENVILLE SILT LOAM, 8 to 15 PERCENT SLOPES	C
GnB	GLENVILLE-BAILE SILT LOAMS, 0 to 8 PERCENT SLOPES	C

LEGEND

- DRAINAGE DIVIDE
- SOIL TYPE BOUNDARY
- GsB / B — SOIL TYPE / SOIL GROUP
- LEVEL SPREADING DEVICE
- RAIN BARREL (M-1)
- D — DRY WELL (M-5)
- RAINSPOUT CONNECTION TO DRY WELL
- ROOF AREA CONNECTED TO DRY WELL
- 15' — ROOFTOP DISCONNECT (N-1)
- 20' NRD — NON-ROOFTOP DISCONNECT (N-2)
- 100' SFB — SHEET FLOW TO BUFFER (N-3)
- MBR-100 — MICRO BIO-RETENTION FACILITY (M-6)

DA F (SEE NOTE)

FILTERRA 1

FILTERRA 2

DA 301

DA 302

DA 303

DA 304

DA 305

DA 306

DA 308

DA 310

MBR 301

MBR 302

MBR 303

MBR 304

MBR 305

MBR 306

MBR 314

MBR 315

MBR 316

MBR 317

MBR 318

MBR 319

MBR 320

MBR 321

E 1346650

N 584,150

E 1341,750

N 585,350

NOTE:
DRAINAGE AREA F IS SPLIT AND EVENLY TREATED BY FILTERRAS 1 AND 2.

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

MATCHLINE FOR CONTINUATION SEE SHEET 54

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6.27.19

Chief, Development Engineering Division — Date 6.24.19

(2) THIS PLAN IS FOR DRAINAGE AREA INFORMATION ONLY. FOR GRADING MICRO-BIOS, SEE SHEETS 16 THROUGH 18, AND DETAILS ON SHEETS 56 THROUGH 64.

GLW
PLANNING | ENGINEERING | SURVEYING
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PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:	JRD		
DRAWN BY:	JRD		
CHECKED BY:	DEV		
2021-03-17	(2) ADDED PURPOSE NOTE	HKJ	DEV
DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975
EXPIRATION DATE: MAY 26, 2020

1/2/19

STATE OF MARYLAND — CHRISTOPHER KENNETH GUTSCHICK — NO. 12975 — PROFESSIONAL ENGINEER

STORMWATER MANAGEMENT DRAINAGE AREA MAP

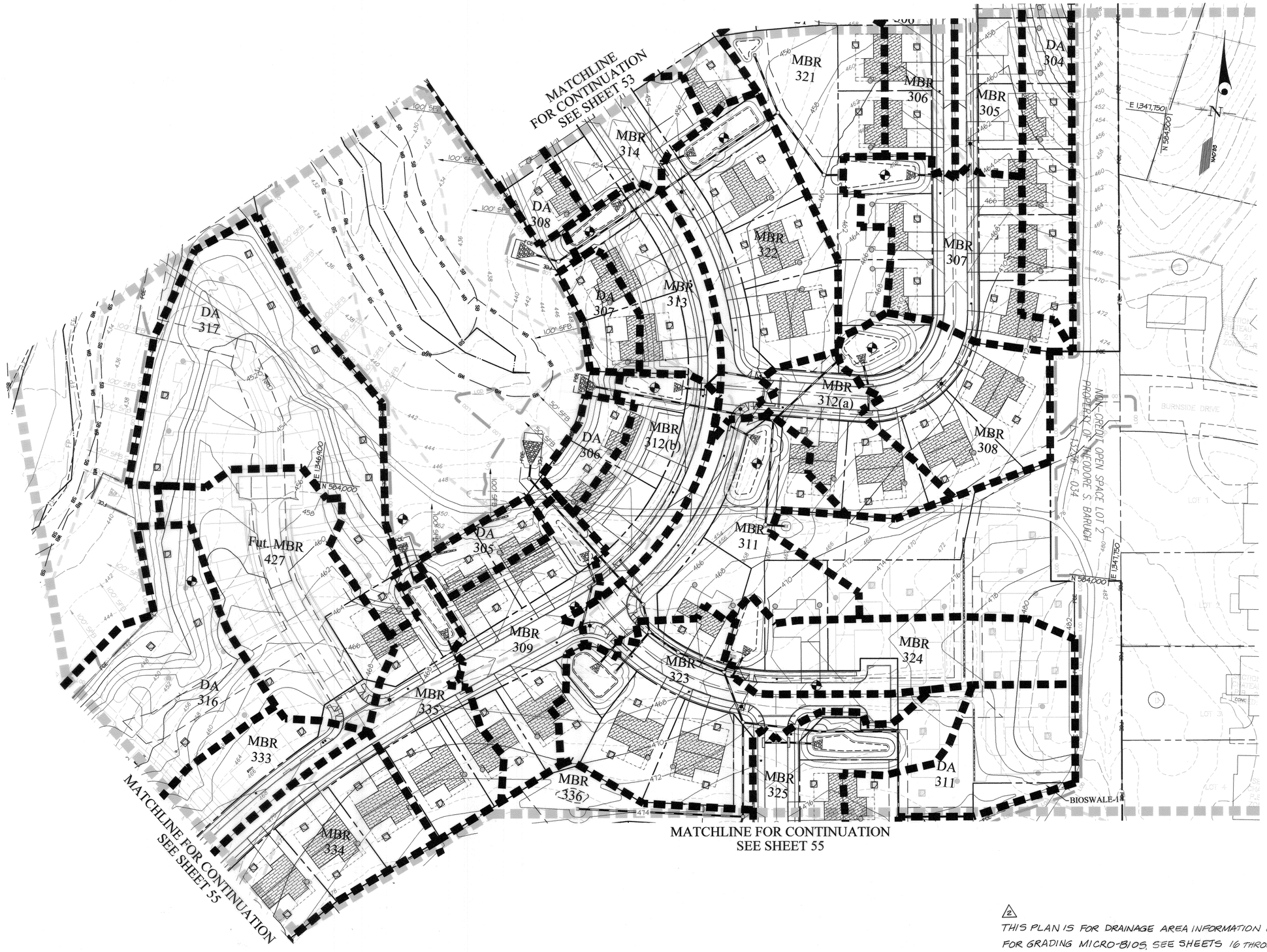
WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	53 OF 92

F 17-001

L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PH3)\13013_53-55_SWM DAM.dwg, Dave Dicks, 6/24/2019 2:25:27 PM, 1:1



GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6.27.19

Chief, Development Engineering Division — Date 6.24.19

GLW PLANNING | ENGINEERING | SURVEYING

3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:				
JRD				
DRAWN BY:				
JRD				
CHECKED BY:				
DEV	2021-03-17	⚠2 ADDED PURPOSE NOTE	HKJ	DEV
	DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975
EXPIRATION DATE: MAY 26, 2020

12/19

STATE OF MARYLAND — CHRISTOPHER KENNETH GLOVIACZKI — NO. 12975 — PROFESSIONAL ENGINEER

STORMWATER MANAGEMENT DRAINAGE AREA MAP

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

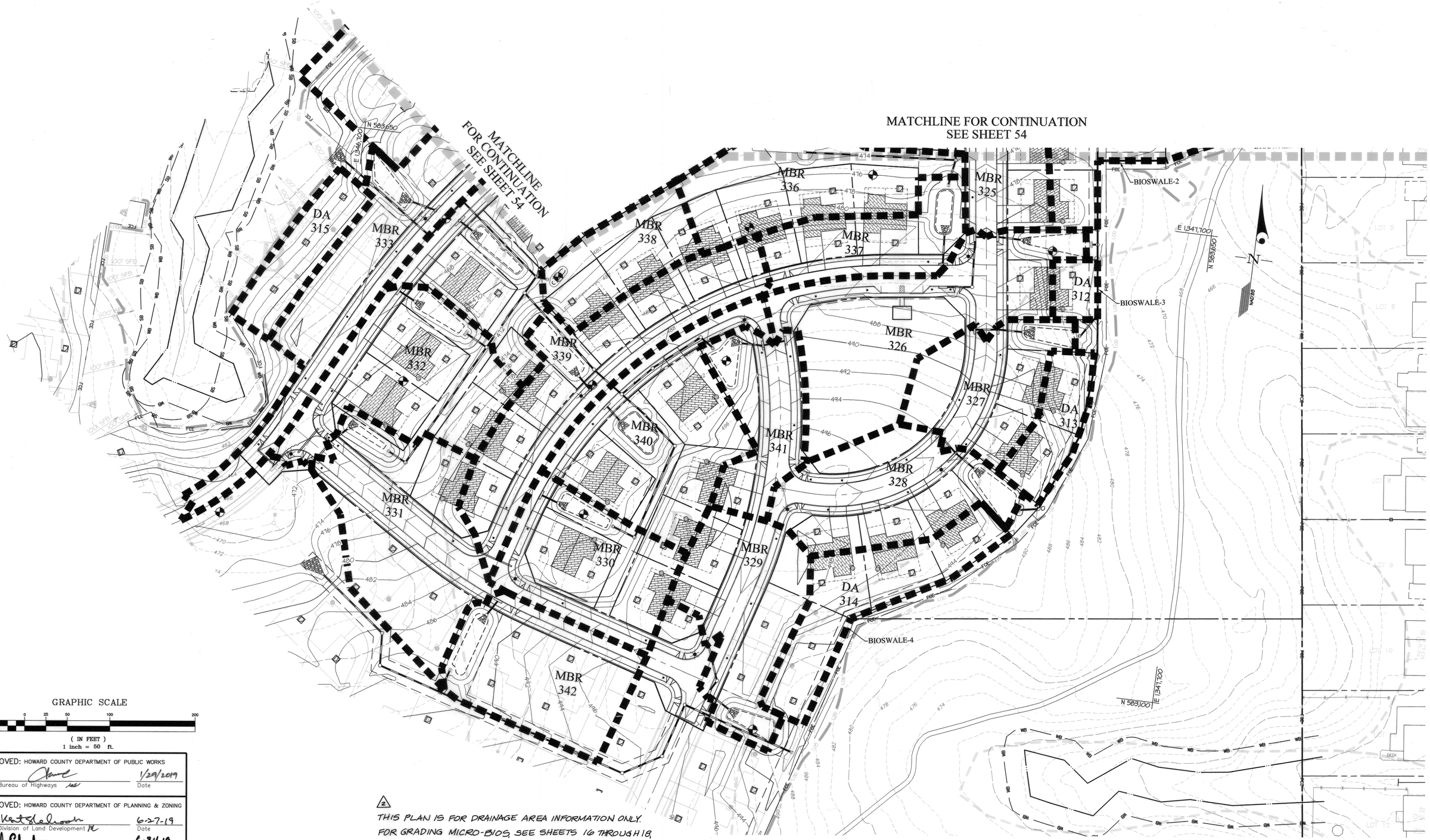
ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	54 OF 72

⚠2
THIS PLAN IS FOR DRAINAGE AREA INFORMATION ONLY. FOR GRADING MICRO-BIOS, SEE SHEETS 16 THROUGH 18, AND DETAILS ON SHEETS 56 THROUGH 64.

F 17-001

L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS- SD (PH3)\13013_53-55_SWM DAM.dwg
PLOTTED: 2/24/2021 12:21 PM by KEITH HAJ - PLOTTED BY: Christopher R. Dicks
SAVED: 12/19/2019 9:18 AM



GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.24.19

2 THIS PLAN IS FOR DRAINAGE AREA INFORMATION ONLY. FOR GRADING MICRO-BIOS, SEE SHEETS 16 THROUGH 18, AND DETAILS ON SHEETS 56 THROUGH 64.

GLW
PLANNING | ENGINEERING | SURVEYING
3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY: JRD				
DRAWN BY: JRD				
CHECKED BY: DEV	2021-03-17	2 ADDED PURPOSE NOTE	HKJ	DEV
	DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975 EXPIRATION DATE: MAY 26, 2020

1/2/19

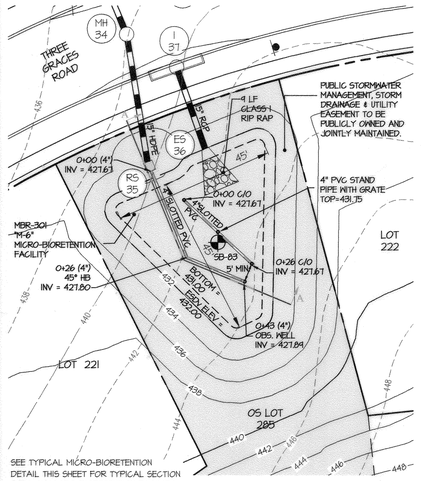
STORMWATER MANAGEMENT DRAINAGE AREA MAP

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=50'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	55 OF 92

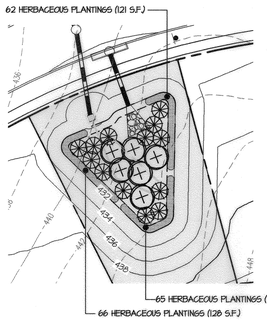
F 17-001



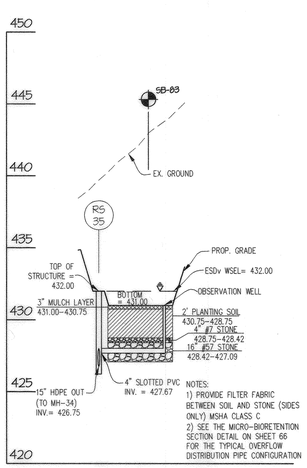
MICRO-BIORETENTION 301 SCALE: 1" = 20'

MBR-301
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 378 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 39,965 SF
STORAGE PROVIDED = 1,508 CU-FT (@432.00)
ESDv PROVIDED = 2,006 CU-FT

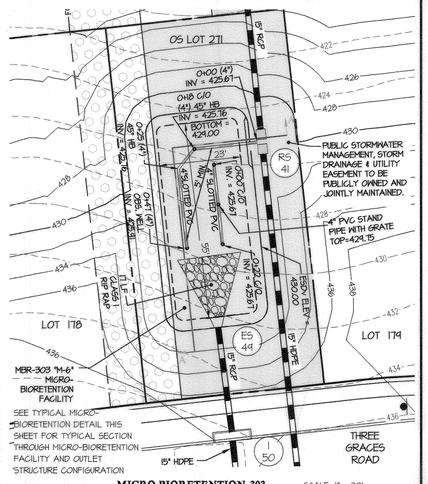
LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 431.00
HIGH-FLOW OUTFALL: RS-35 ('5' INLET, TOP = 432.00)
MINIMUM DAM ELEVATION = 432.50



MICRO-BIORETENTION 301 LANDSCAPE PLAN SCALE: 1" = 30'



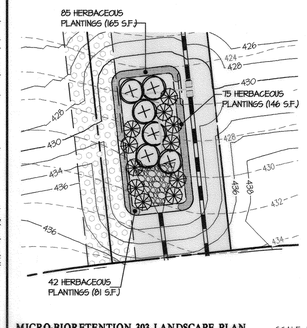
SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)



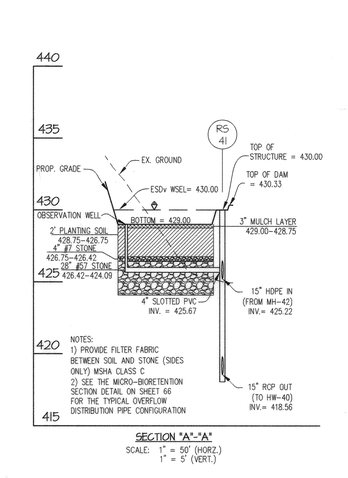
MICRO-BIORETENTION 303 SCALE: 1" = 20'

MBR-303
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 378 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 29,415 SF
STORAGE PROVIDED = 1,473 CU-FT (@430.00)
ESDv PROVIDED = 1,958 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 429.00
HIGH-FLOW OUTFALL: RS-41 ('5S' INLET, TOP = 430.00)
MINIMUM DAM ELEVATION = 430.33



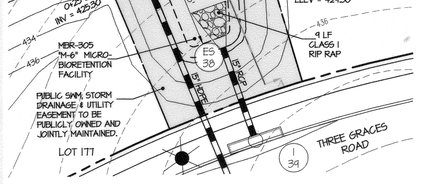
MICRO-BIORETENTION 303 LANDSCAPE PLAN SCALE: 1" = 30'



SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

MICRO-BIORETENTION 301 DETAILS

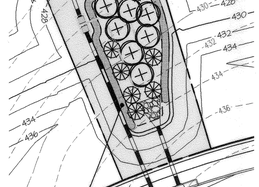
MICRO-BIORETENTION 303 DETAILS



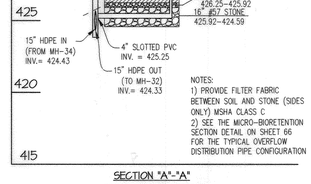
MICRO-BIORETENTION 302 SCALE: 1" = 20'

MBR-302
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 378 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 27,964 SF
STORAGE PROVIDED = 1,470 CU-FT (@429.50)
ESDv PROVIDED = 1,954 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 428.50
HIGH-FLOW OUTFALL: RS-33 ('5S' INLET, TOP = 429.50)
MINIMUM DAM ELEVATION = 429.83



MICRO-BIORETENTION 302 LANDSCAPE PLAN SCALE: 1" = 30'



SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

MICRO-BIORETENTION 302 DETAILS

S.D. PIPE SUMMARY TABLE - PUBLICALLY OWNED AND JOINTLY MAINTAINED			
SIZE (INCHES)	TYPE	QUANTITY (L.F.)	REMARKS
4	SLOTTED PVC	3,232	SCHEDULE 40
4	PVC	311	SCHEDULE 40
6	PVC	64	

THE SD PIPE SUMMARY TABLE IS FOR THE STORMWATER MANAGEMENT UNDERDRAIN ONLY. FOR THE SITE SD PIPE SUMMARY, SEE SHEET 32.

MICRO-BIORETENTION PLANT LIST (for this sheet)				
SYMBOL	QTY.	NAMES (BOTANICAL / SCIENTIFIC)	SIZE	ROOT/COMMENTS
SHRUBS *				
	32	CORNUS SERICEA 'RUBY'/ RUBY RED OSIER DOGWOOD	18"-24" SPR.	CONTAINER
	54	ITEA VIRGINICA 'HENRY'S GARNET'/ VIRGINIA SWEETSPIRE	18"-24" SPR.	CONTAINER
HERBACEOUS *				
	982	PROVIDE AN EVEN MIX OF THE FOLLOWING PLANTS IN EACH MICRO-BIO: -HEMEROCALLIS 'STRAWBERRY CANDY' DAYLILY -HEMEROCALLIS 'JOAN SENIOR' DAYLILY -KALMIA ANGUSTIFOLIA/SHEEP LAUREL -ELEOCHARIS OVATA OBTUSA/BLUNT SPIKE RUSH	18" O.C.	CONTAINER

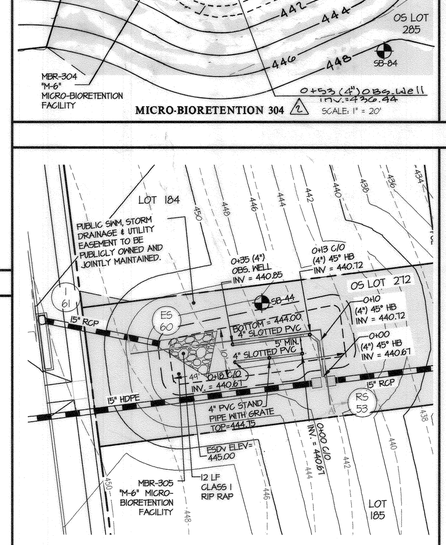
* SEE SHEET 13 FOR SHRUB AND HERBACEOUS PLANTING DETAILS

0 4 10 20 40
1 inch = 20 ft.

0 6 15 30 60
1 inch = 30 ft.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 6-27-19
Chief, Development Engineering Division — Date 6.24.19

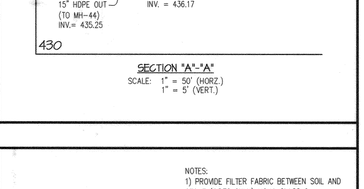


MICRO-BIORETENTION 304 SCALE: 1" = 20'

MBR-304
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 378 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 35,351 SF
STORAGE PROVIDED = 2,286 CU-FT (@440.50)
ESDv PROVIDED = 3,040X CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 434.50
HIGH-FLOW OUTFALL: RS-45 ('5S' INLET, TOP = 440.50)
MINIMUM DAM ELEVATION = 440.83

MICRO-BIORETENTION 304 LANDSCAPE PLAN SCALE: 1" = 30'



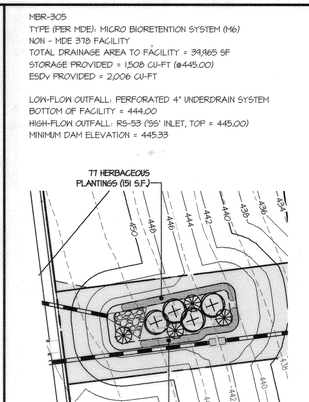
SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

MICRO-BIORETENTION 304 DETAILS

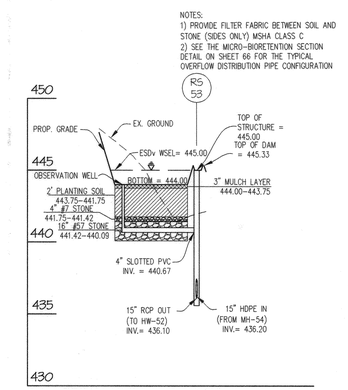
MICRO-BIORETENTION 305 SCALE: 1" = 20'

MBR-305
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 378 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 39,965 SF
STORAGE PROVIDED = 1,508 CU-FT (@445.00)
ESDv PROVIDED = 2,006 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 444.00
HIGH-FLOW OUTFALL: RS-53 ('5S' INLET, TOP = 445.00)
MINIMUM DAM ELEVATION = 445.33



MICRO-BIORETENTION 305 LANDSCAPE PLAN SCALE: 1" = 30'



SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

MICRO-BIORETENTION 305 DETAILS

GLW
PLANNING | ENGINEERING | SURVEYING
3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:				
JRD				
DRAWN BY:				
JRD				
CHECKED BY:				
DEV				
2021-03-17	⚠ Rev. Micro-Bioretention 304 and Landscape Plan 304		WAJ	DEV
DATE	REVISION		BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975
EXPIRATION DATE: MAY 26, 2020
1/2/19

STATE OF MARYLAND — CHRISTOPHER KENNETH GIRDNER — No. 12975 — PROFESSIONAL ENGINEER

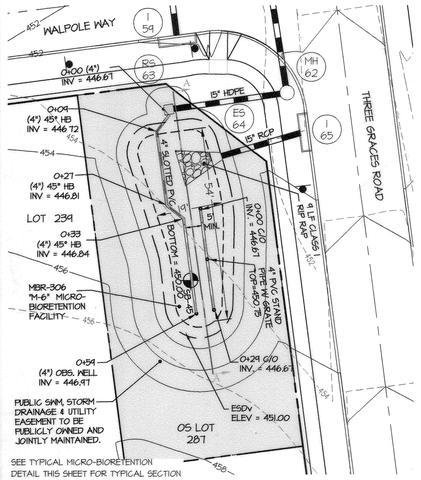
STORMWATER MANAGEMENT DETAILS

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	56 OF 92

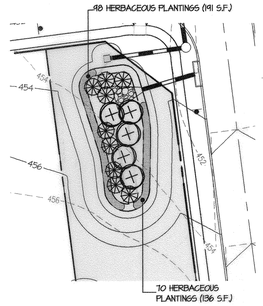
F 17-001



MICRO-BIORETENTION 306 SCALE: 1" = 20'

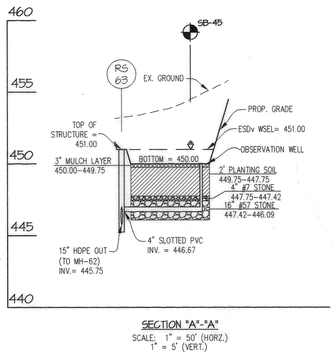
MBR-306
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 318 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 17,112 SF
STORAGE PROVIDED = 1,105 CU-FT (@451.00)
ESDv PROVIDED = 1,464 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 450.00
HIGH-FLOW OUTFALL: RS-63 (5' INLET, TOP = 451.00)
MINIMUM DAM ELEVATION = **451.33**



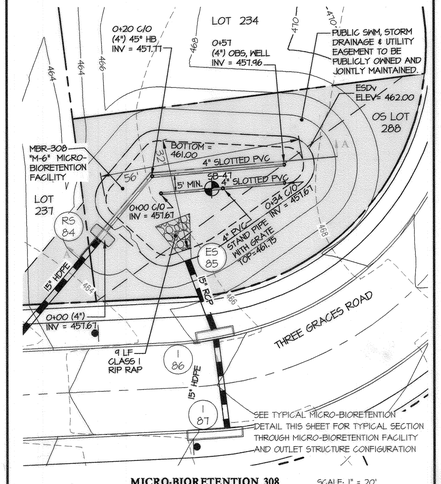
MICRO-BIORETENTION 306 LANDSCAPE PLAN SCALE: 1" = 30'

NOTES:
1) PROVIDE FILTER FABRIC BETWEEN SOIL AND STONE (SIDES ONLY) MSHA CLASS C
2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION



SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

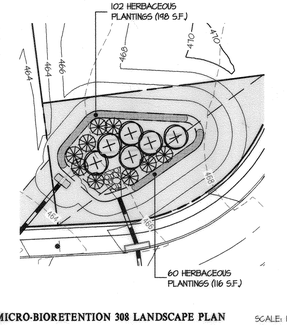
MICRO-BIORETENTION 306 DETAILS



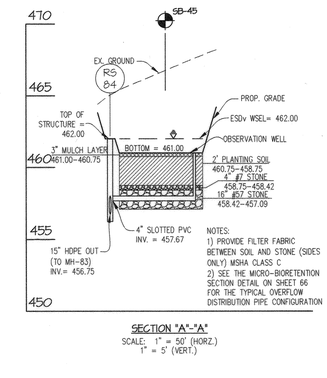
MICRO-BIORETENTION 308 SCALE: 1" = 20'

MBR-308
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 318 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 29,846 SF
STORAGE PROVIDED =961 CU-FT (@462.00)
ESDv PROVIDED = 1,277 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 461.00
HIGH-FLOW OUTFALL: RS-84 (5' INLET, TOP = 462.00)
MINIMUM DAM ELEVATION = 462.33



MICRO-BIORETENTION 308 LANDSCAPE PLAN SCALE: 1" = 30'



SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

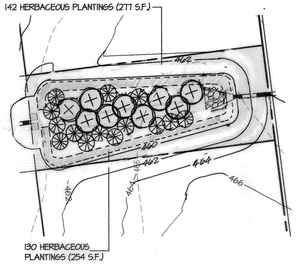
NOTES:
1) PROVIDE FILTER FABRIC BETWEEN SOIL AND STONE (SIDES ONLY) MSHA CLASS C
2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION

MICRO-BIORETENTION 308 DETAILS

MICRO-BIORETENTION 307 SCALE: 1" = 20'

MBR-307
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 318 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 28,561 SF
STORAGE PROVIDED = 1,881 CU-FT (@459.50)
ESDv PROVIDED = 2,501 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 458.50
HIGH-FLOW OUTFALL: RS-72 (5' INLET, TOP = 459.50)
MINIMUM DAM ELEVATION = 459.83



MICRO-BIORETENTION 307 LANDSCAPE PLAN SCALE: 1" = 30'

NOTES:
1) PROVIDE FILTER FABRIC BETWEEN SOIL AND STONE (SIDES ONLY) MSHA CLASS C
2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION

SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

MICRO-BIORETENTION 307 DETAILS

MICRO-BIORETENTION 309 SCALE: 1" = 20'

MBR-309
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 318 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 28,372 SF
STORAGE PROVIDED = 691 CU-FT (@459.50)
ESDv PROVIDED = 621 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 458.50
HIGH-FLOW OUTFALL: RS-99 (5' INLET, TOP = 459.50)
MINIMUM DAM ELEVATION = 459.83

MICRO-BIORETENTION 309 LANDSCAPE PLAN SCALE: 1" = 30'

NOTES:
1) PROVIDE FILTER FABRIC BETWEEN SOIL AND STONE (SIDES ONLY) MSHA CLASS C
2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION

SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

MICRO-BIORETENTION 309 DETAILS

0 4 10 20 40
1 inch = 20 ft.

0 6 15 30 60
1 inch = 30 ft.

NOTE:
FOR TOTAL PIPE LENGTH WITHIN STORMWATER MANAGEMENT DEVICES, SEE SHEET 56.

MICRO-BIORETENTION PLANT LIST (for this sheet)

SYMBOL	QTY.	NAMES (BOTANICAL / SCIENTIFIC)	SIZE	ROOT/COMMENTS
SHRUBS *				
	23	CORNUS SERICEA 'RUBY'/ RUBY RED OSIER DOGWOOD	18"-24" SPR.	CONTAINER
	36	ITEA VIRGINICA 'HENRY'S GARNET'/ VIRGINIA SWEETSPIRE	18"-24" SPR.	CONTAINER
HERBACEOUS *				
	754	PROVIDE AN EVEN MIX OF THE FOLLOWING PLANTS IN EACH MICRO-BIO. -HEMEROCALLIS 'STRAWBERRY CANDY' DAYLILY -HEMEROCALLIS 'JOAN SENIOR' DAYLILY -KALMIA ANGUSTIFOLIA/SHEEP LAUREL -ELEOCHARIS OVATA /BTUSA/BLUNT SPIKE RUSH	18" O.C.	CONTAINER

* SEE SHEET 13 FOR SHRUB AND HERBACEOUS PLANTING DETAILS

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 6-27-19
Chief, Development Engineering Division — Date 6.24.19

GLW PLANNING | ENGINEERING | SURVEYING
3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:				
JRD				
DRAWN BY: JRD				
CHECKED BY: DEV	2021-03-17	REVISED MICRO-BIO 307 AND 309 LANDSAIPING	MKJ	DEV
	DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975
EXPIRATION DATE: MAY 26, 2020
1/2/19

STORMWATER MANAGEMENT DETAILS

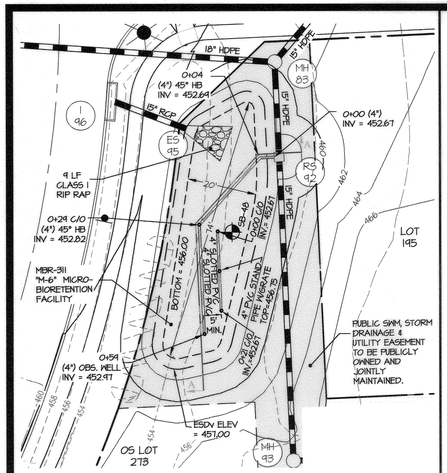
WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	57 OF 92

F 17-001

L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PH3)\13013_57_ESD DETAILS-2(306-310).dwg, 3/29/2021 10:39:39 AM, jmiller

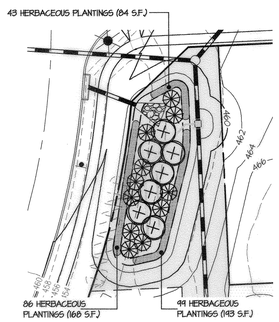


SEE TYPICAL MICRO-BIORETENTION DETAIL THIS SHEET FOR TYPICAL SECTION THROUGH MICRO-BIORETENTION FACILITY AND OUTLET STRUCTURE CONFIGURATION

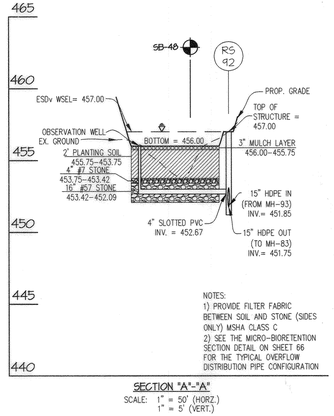
MICRO-BIORETENTION 311 SCALE: 1" = 20'

MBR-311
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 318 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 36,534 SF
STORAGE PROVIDED = 1,454 CU-FT (@457.00)
ESDv PROVIDED = 1,940 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 456.00
HIGH-FLOW OUTFALL: RS-92 ('5' INLET, TOP = 457.00)
MINIMUM DAM ELEVATION = 457.50



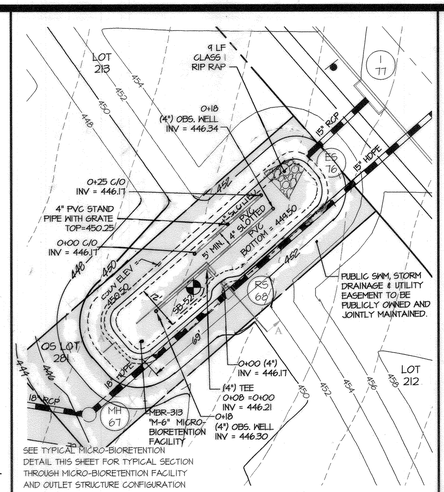
MICRO-BIORETENTION 311 LANDSCAPE PLAN SCALE: 1" = 30'



NOTES:
1) PROVIDE FILTER FABRIC BETWEEN SOIL AND STONE (SIDES ONLY) MSHA CLASS C
2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION

SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

MICRO-BIORETENTION 311 DETAILS

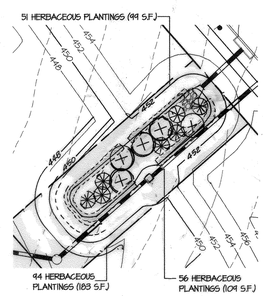


SEE TYPICAL MICRO-BIORETENTION DETAIL THIS SHEET FOR TYPICAL SECTION THROUGH MICRO-BIORETENTION FACILITY AND OUTLET STRUCTURE CONFIGURATION

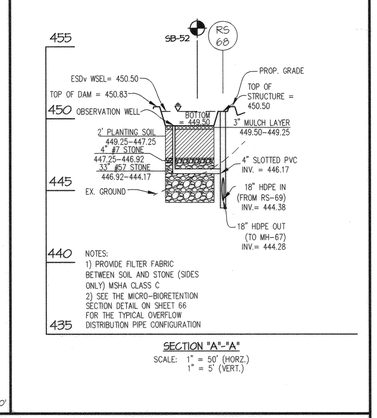
MICRO-BIORETENTION 313 SCALE: 1" = 20'

MBR-313
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 318 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 19,210 SF
STORAGE PROVIDED = 1,058 CU-FT (@450.50)
ESDv PROVIDED = 1,400 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 449.50
HIGH-FLOW OUTFALL: RS-68 ('5' INLET, TOP = 450.50)
MINIMUM DAM ELEVATION = 450.83



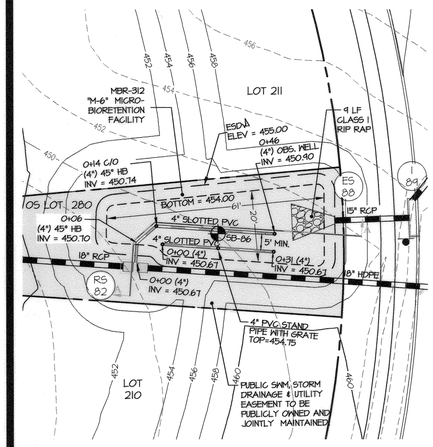
MICRO-BIORETENTION 313 LANDSCAPE PLAN SCALE: 1" = 30'



NOTES:
1) PROVIDE FILTER FABRIC BETWEEN SOIL AND STONE (SIDES ONLY) MSHA CLASS C
2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION

SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

MICRO-BIORETENTION 313 DETAILS

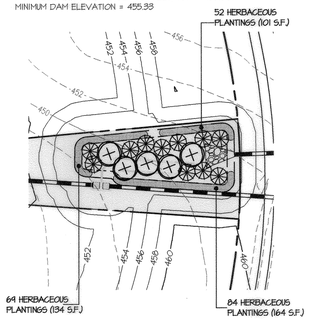


SEE TYPICAL MICRO-BIORETENTION DETAIL THIS SHEET FOR TYPICAL SECTION THROUGH MICRO-BIORETENTION FACILITY AND OUTLET STRUCTURE CONFIGURATION

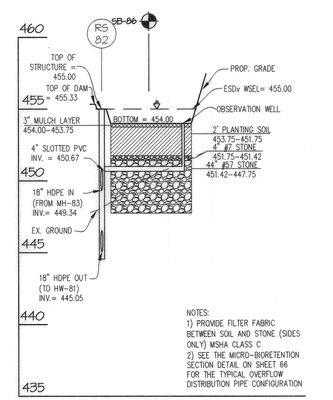
MICRO-BIORETENTION 312 SCALE: 1" = 20'

MBR-312
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 318 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 37,161 SF
STORAGE PROVIDED = 1,154 CU-FT (@455.00)
ESDv PROVIDED = 1,535 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 454.00
HIGH-FLOW OUTFALL: RS-82 ('5S' INLET, TOP = 455.00)
MINIMUM DAM ELEVATION = 455.33



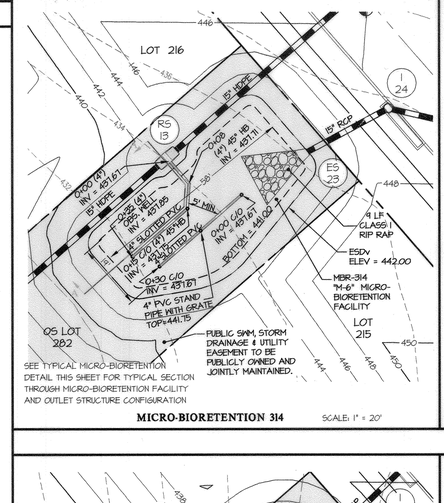
MICRO-BIORETENTION 312 LANDSCAPE PLAN SCALE: 1" = 30'



NOTES:
1) PROVIDE FILTER FABRIC BETWEEN SOIL AND STONE (SIDES ONLY) MSHA CLASS C
2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION

SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

MICRO-BIORETENTION 312 DETAILS

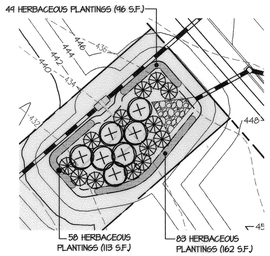


SEE TYPICAL MICRO-BIORETENTION DETAIL THIS SHEET FOR TYPICAL SECTION THROUGH MICRO-BIORETENTION FACILITY AND OUTLET STRUCTURE CONFIGURATION

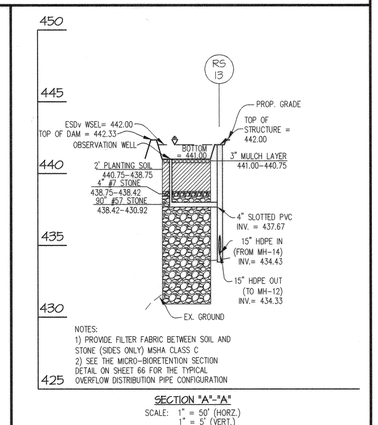
MICRO-BIORETENTION 314 SCALE: 1" = 20'

MBR-314
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 318 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 31,606 SF
STORAGE PROVIDED = 1,710 CU-FT (@442.00)
ESDv PROVIDED =2,274 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 441.00
HIGH-FLOW OUTFALL: RS-13 ('5S' INLET, TOP =442.00)
MINIMUM DAM ELEVATION = 442.33



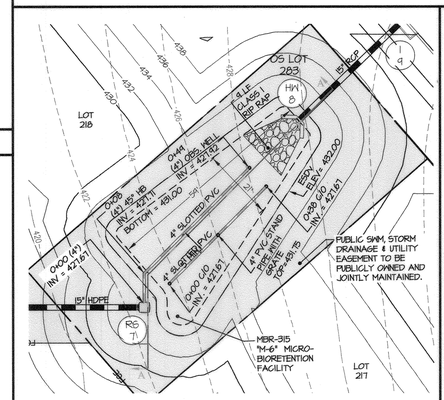
MICRO-BIORETENTION 314 LANDSCAPE PLAN SCALE: 1" = 30'



NOTES:
1) PROVIDE FILTER FABRIC BETWEEN SOIL AND STONE (SIDES ONLY) MSHA CLASS C
2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION

SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

MICRO-BIORETENTION 314 DETAILS

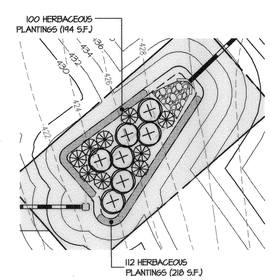


SEE TYPICAL MICRO-BIORETENTION DETAIL THIS SHEET FOR TYPICAL SECTION THROUGH MICRO-BIORETENTION FACILITY AND OUTLET STRUCTURE CONFIGURATION

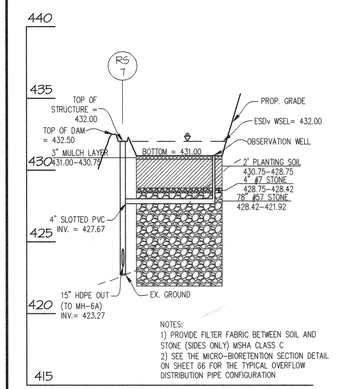
MICRO-BIORETENTION 315 SCALE: 1" = 20'

MBR-315
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 318 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 30,082 SF
STORAGE PROVIDED = 1,628 CU-FT (@432.00)
ESDv PROVIDED =2,165 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 431.00
HIGH-FLOW OUTFALL: RS-71 ('5' INLET, TOP = 432.00)
MINIMUM DAM ELEVATION = 432.50



MICRO-BIORETENTION 315 LANDSCAPE PLAN SCALE: 1" = 30'



NOTES:
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2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION

SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

MICRO-BIORETENTION 315 DETAILS

0 4 10 20 40
1 inch = 20 ft.

0 6 15 30 60
1 inch = 30 ft.

NOTE:
FOR TOTAL PIPE LENGTH WITHIN STORMWATER MANAGEMENT DEVICES, SEE SHEET 56.

MICRO-BIORETENTION PLANT LIST (for this sheet)

SYMBOL	QTY.	NAMES (BOTANICAL / SCIENTIFIC)	SIZE	ROOT/COMMENTS
SHRUBS *				
	31	CORNUS SERICEA 'RUBY' / RUBY RED OSIER DOGWOOD	18"-24" SPR.	CONTAINER
	51	ITEA VIRGINICA 'HENRY'S GARNET' / VIRGINIA SWEETSPIRE	18"-24" SPR.	CONTAINER
HERBACEOUS *				
	1,036	PROVIDE AN EVEN MIX OF THE FOLLOWING PLANTS IN EACH MICRO-BIO: -HEMEROCALLIS 'STRAWBERRY CANDY' DAYLILY -HEMEROCALLIS 'JOAN SENIOR' DAYLILY -KALMIA ANGUSTIFOLIA/SHEEP LAUREL -ELEOCHARIS OVATA OBTUSA/BLUNT SPIKE RUSH	18" O.C.	CONTAINER

* SEE SHEET 13 FOR SHRUB AND HERBACEOUS PLANTING DETAILS

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.24.19

GLW
PLANNING | ENGINEERING | SURVEYING
3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:				
JRD				
DRAWN BY:				
JRD				
CHECKED BY:				
DEV	2021-03-17	REVISED MICRO-BIO 313 PLAN & 313 LANDSCAPING PLAN	HKJ	DEV
	DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975 EXPIRATION DATE: MAY 26, 2020

STATE OF MARYLAND — CHRISTOPHER KENNETH GLASGOW — PROFESSIONAL ENGINEER

1/2/19

STORMWATER MANAGEMENT DETAILS

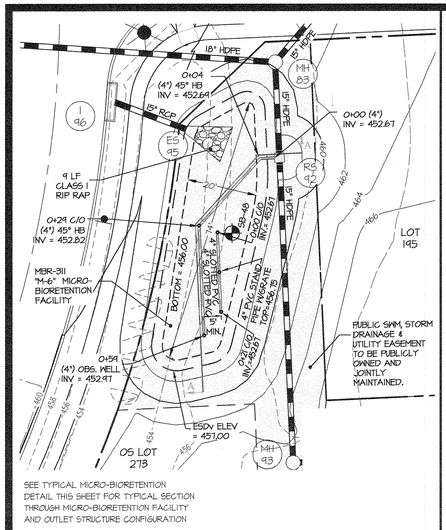
WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	58 OF 92

F 17-001

L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PH3)\13013_58_ESD DETAILS-3(311-315).dwg, 3/25/2021 8:20:39 AM, HKJ

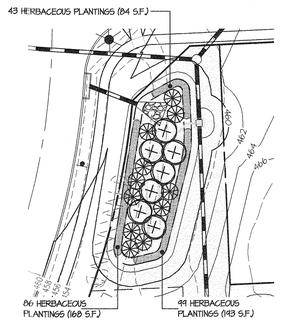


SEE TYPICAL MICRO-BIORETENTION DETAIL THIS SHEET FOR TYPICAL SECTION THROUGH MICRO-BIORETENTION FACILITY AND OUTLET STRUCTURE CONFIGURATION

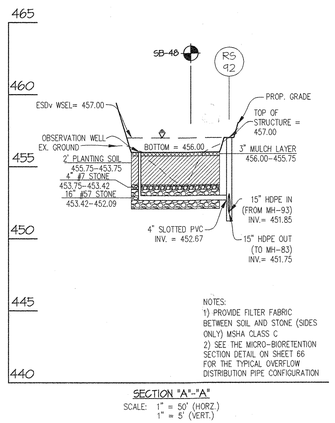
MICRO-BIORETENTION 311 SCALE: 1" = 20'

MBR-311
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M-6)
NON - MDE 378 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 36,534 SF
STORAGE PROVIDED = 1,494 CU-FT (@457.00)
ESDv PROVIDED = 1,940 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 456.00
HIGH-FLOW OUTFALL: RS-42 ('S' INLET, TOP = 457.00)
MINIMUM DAM ELEVATION = 457.50



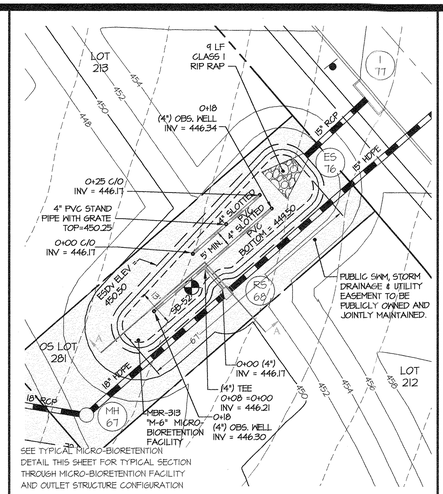
MICRO-BIORETENTION 311 LANDSCAPE PLAN SCALE: 1" = 30'



NOTES:
1) PROVIDE FILTER FABRIC BETWEEN SOIL AND STONE (SIDES ONLY) MSHA CLASS C
2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION

SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

MICRO-BIORETENTION 311 DETAILS

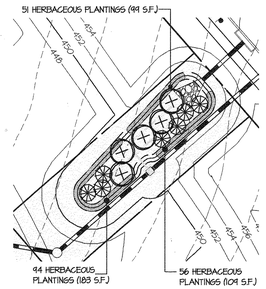


SEE TYPICAL MICRO-BIORETENTION DETAIL THIS SHEET FOR TYPICAL SECTION THROUGH MICRO-BIORETENTION FACILITY AND OUTLET STRUCTURE CONFIGURATION

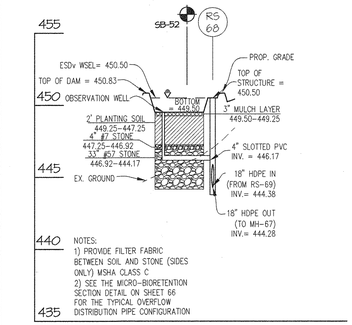
MICRO-BIORETENTION 313 SCALE: 1" = 20'

MBR-313
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M-6)
NON - MDE 378 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 14,270 SF
STORAGE PROVIDED = 1,053 CU-FT (@450.50)
ESDv PROVIDED = 1,400 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 449.50
HIGH-FLOW OUTFALL: RS-68 ('S' INLET, TOP = 450.50)
MINIMUM DAM ELEVATION = 450.83



MICRO-BIORETENTION 313 LANDSCAPE PLAN SCALE: 1" = 30'



NOTES:
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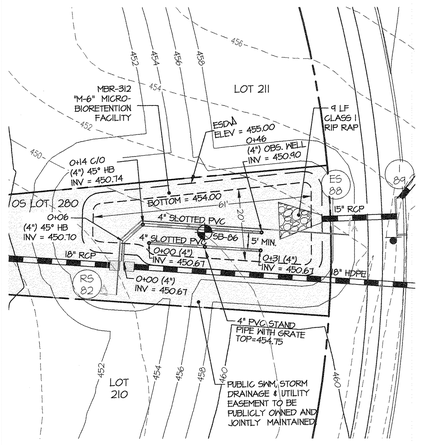
2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION

SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

MICRO-BIORETENTION 313 DETAILS



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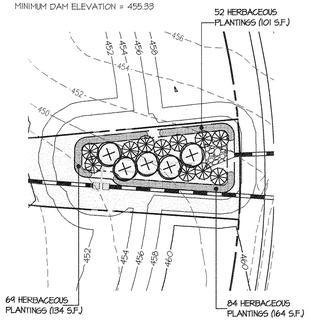
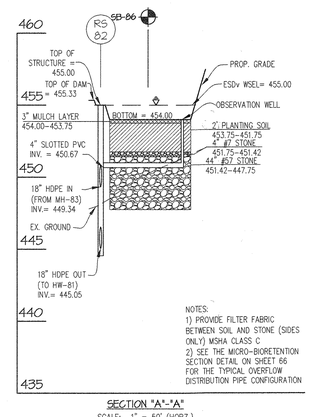
MICRO-BIORETENTION 312 SCALE: 1" = 20'

MBR-312
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M-6)
NON - MDE 378 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 37,161 SF
STORAGE PROVIDED = 1,154 CU-FT (@455.00)
ESDv PROVIDED = 1,585 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 454.00
HIGH-FLOW OUTFALL: RS-82 ('SS' INLET, TOP = 455.00)
MINIMUM DAM ELEVATION = 455.33



MICRO-BIORETENTION 312 LANDSCAPE PLAN SCALE: 1" = 30'



NOTES:
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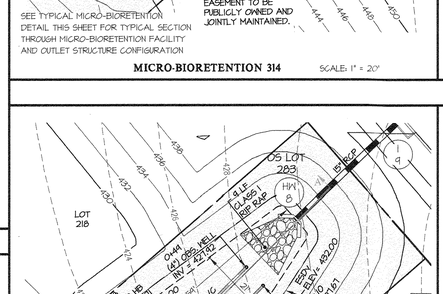
SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

MICRO-BIORETENTION 312 DETAILS

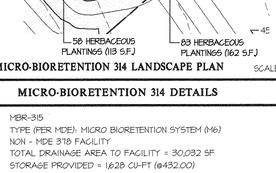


SEE TYPICAL MICRO-BIORETENTION DETAIL THIS SHEET FOR TYPICAL SECTION THROUGH MICRO-BIORETENTION FACILITY AND OUTLET STRUCTURE CONFIGURATION

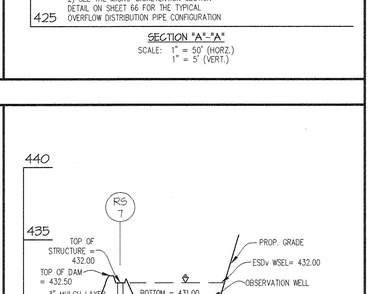
MICRO-BIORETENTION 314 SCALE: 1" = 20'

MBR-314
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M-6)
NON - MDE 378 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 31,606 SF
STORAGE PROVIDED = 1,710 CU-FT (@442.00)
ESDv PROVIDED =2,214 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 441.00
HIGH-FLOW OUTFALL: RS-13 ('SS' INLET, TOP =442.00)
MINIMUM DAM ELEVATION = 442.33



MICRO-BIORETENTION 314 LANDSCAPE PLAN SCALE: 1" = 30'



NOTES:
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2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION

SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

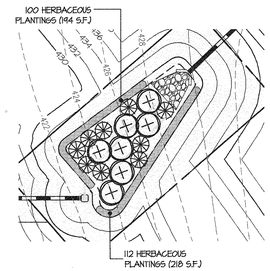
MICRO-BIORETENTION 314 DETAILS

SEE TYPICAL MICRO-BIORETENTION DETAIL THIS SHEET FOR TYPICAL SECTION THROUGH MICRO-BIORETENTION FACILITY AND OUTLET STRUCTURE CONFIGURATION

MICRO-BIORETENTION 315 SCALE: 1" = 20'

MBR-315
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M-6)
NON - MDE 378 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 30,032 SF
STORAGE PROVIDED = 1,628 CU-FT (@432.00)
ESDv PROVIDED =2,165 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 431.00
HIGH-FLOW OUTFALL: RS-7 ('S' INLET, TOP = 432.00)
MINIMUM DAM ELEVATION = 432.50



MICRO-BIORETENTION 315 LANDSCAPE PLAN SCALE: 1" = 30'

NOTES:
1) PROVIDE FILTER FABRIC BETWEEN SOIL AND STONE (SIDES ONLY) MSHA CLASS C
2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION

SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

MICRO-BIORETENTION 315 DETAILS

0 4 10 20 40
1 inch = 20 ft.

0 6 15 30 60
1 inch = 30 ft.

NOTE:
FOR TOTAL PIPE LENGTH WITHIN STORMWATER MANAGEMENT DEVICES, SEE SHEET 56.

MICRO-BIORETENTION PLANT LIST (for this sheet)

SYMBOL	QTY.	NAMES (BOTANICAL / SCIENTIFIC)	SIZE	ROOT/COMMENTS
SHRUBS *				
	31	CORNUS SERICEA 'RUBY'/ RUBY RED OSIER DOGWOOD	18"-24" SPR.	CONTAINER
	51	ITEA VIRGINICA 'HENRY'S GARNET'/ VIRGINIA SWEETSPIRE	18"-24" SPR.	CONTAINER
HERBACEOUS *				
	1,086	PROVIDE AN EVEN MIX OF THE FOLLOWING PLANTS IN EACH MICRO-BIO: -HEMEROCALLIS 'STRAWBERRY CANDY' DAYLILY -HEMEROCALLIS 'JOAN SENIOR' DAYLILY -KALMIA ANGUSTIFOLIA/SHEEP LAUREL -ELEOCHARIS OVATA OBTUSA/BLUNT SPIKE RUSH	18" O.C.	CONTAINER

* SEE SHEET 13 FOR SHRUB AND HERBACEOUS PLANTING DETAILS

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.24.19

GLW
PLANNING | ENGINEERING | SURVEYING
3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:	DATE	REVISION	BY	APP'R.
JRD				
DRAWN BY: JRD				
CHECKED BY: DEV				

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975, EXPIRATION DATE: MAY 26, 2020

STATE OF MARYLAND — GARRETT LEE KENNEDY — PROFESSIONAL ENGINEER

1/2/19

STORMWATER MANAGEMENT DETAILS

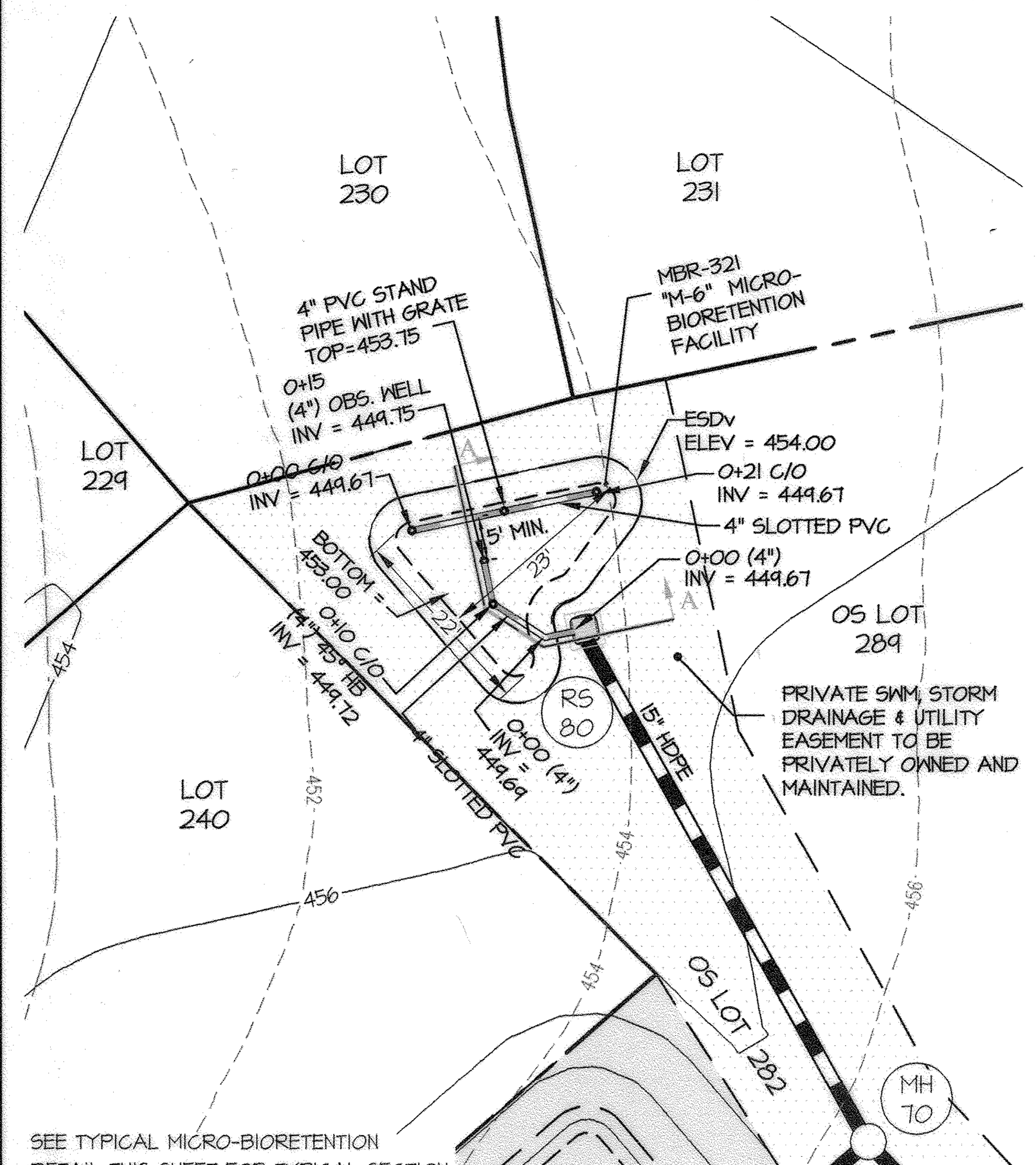
WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	58 OF 92

F 17-001

L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PH3)\13013_58_ESD DETAILS-3(311-315).dwg, 1/2/2019 2:27:22 PM, JDEVLIN

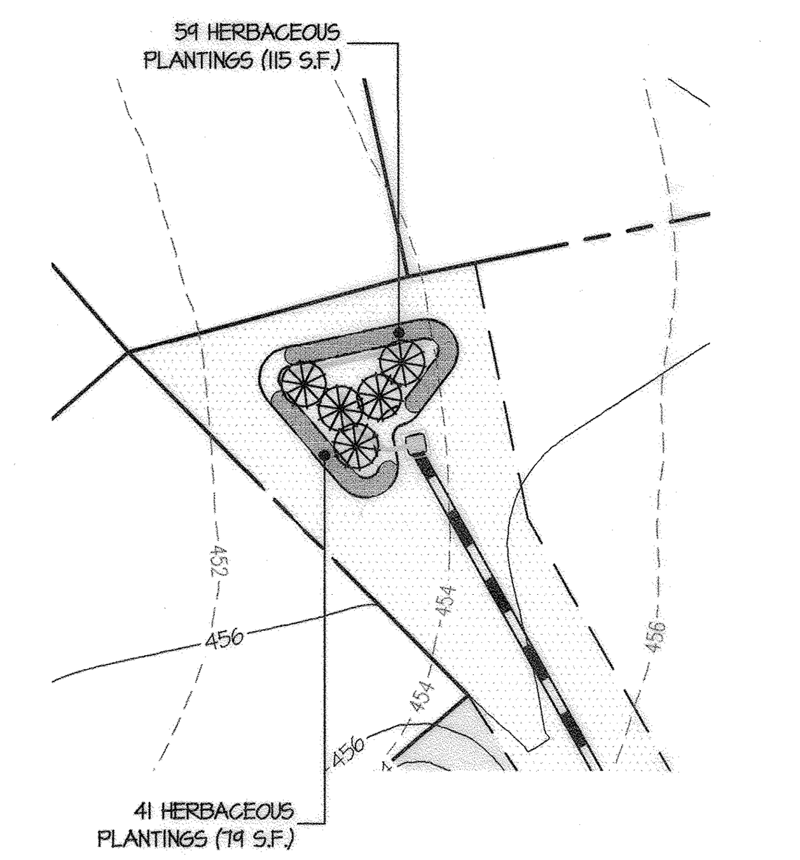


SEE TYPICAL MICRO-BIORETENTION DETAIL THIS SHEET FOR TYPICAL SECTION THROUGH MICRO-BIORETENTION FACILITY AND OUTLET STRUCTURE CONFIGURATION

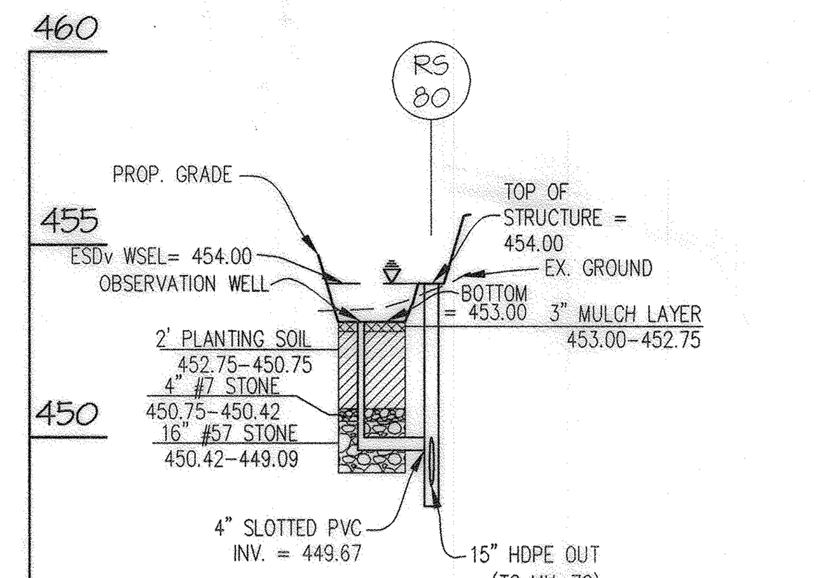
MICRO-BIORETENTION 321 SCALE: 1" = 20'

MBR-321
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 378 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 36,200 SF
STORAGE PROVIDED = 389 CU-FT (@454.00)
ESDv PROVIDED = 517 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 453.00
HIGH-FLOW OUTFALL: RS-80 ('S' INLET, TOP = 454.00)
MINIMUM DAM ELEVATION = 454.33



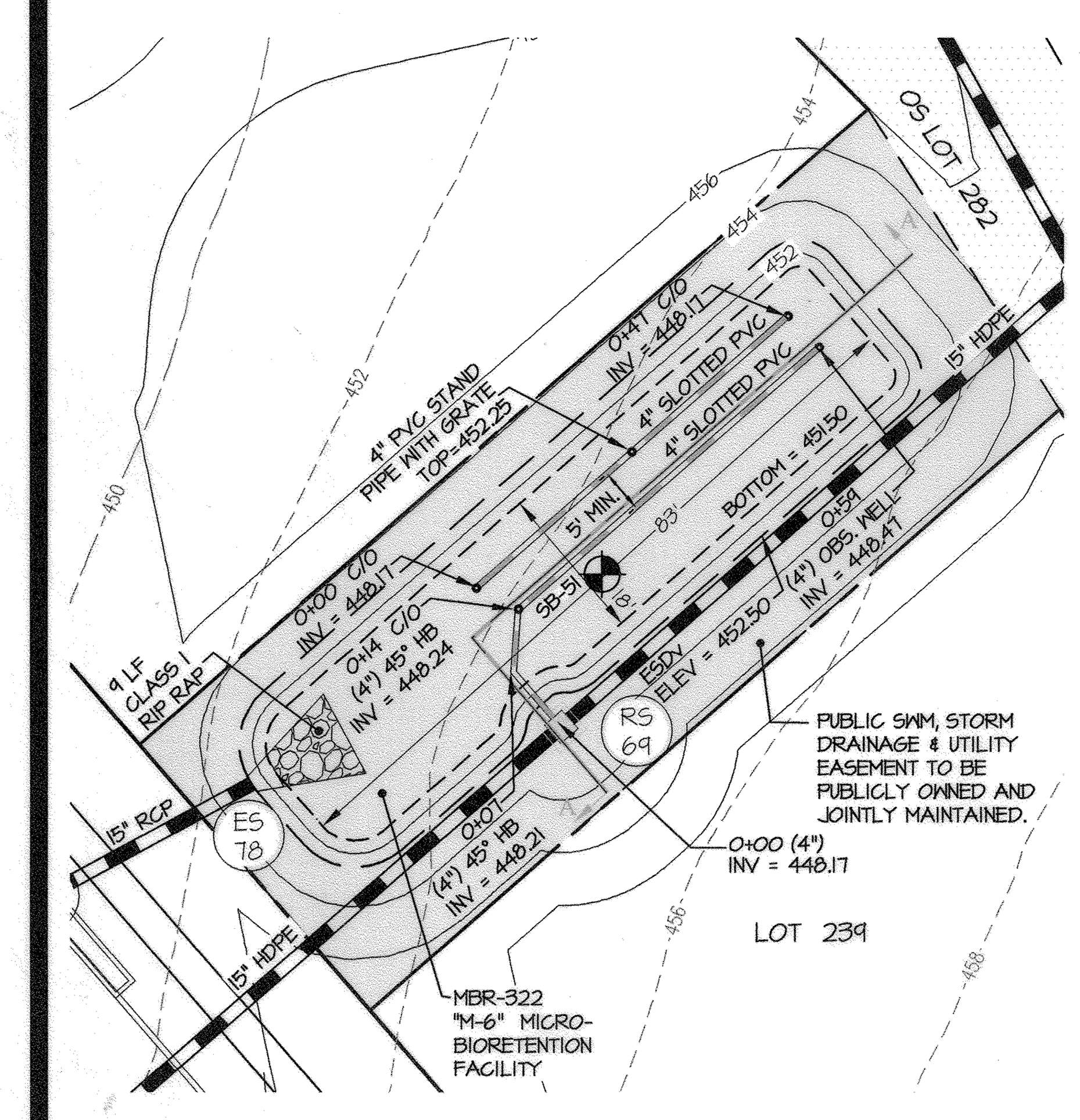
MICRO-BIORETENTION 321 LANDSCAPE PLAN SCALE: 1" = 30'



NOTES:
1) PROVIDE FILTER FABRIC BETWEEN SOIL AND STONE (SIDES ONLY) MSHA CLASS C
2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION

SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

MICRO-BIORETENTION 321 DETAILS

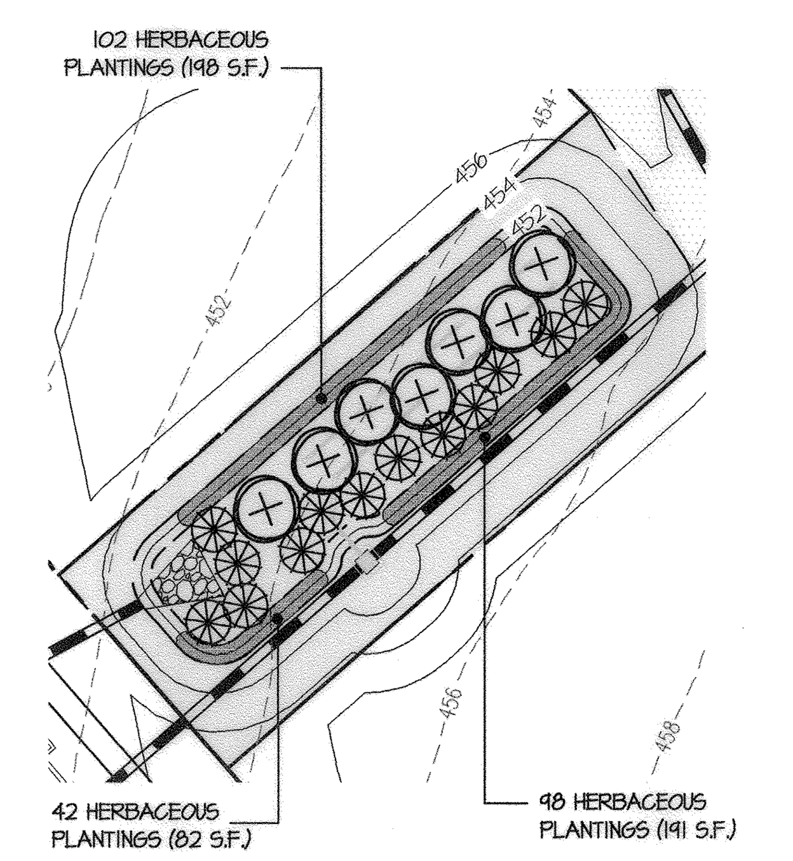


SEE TYPICAL MICRO-BIORETENTION DETAIL THIS SHEET FOR TYPICAL SECTION THROUGH MICRO-BIORETENTION FACILITY AND OUTLET STRUCTURE CONFIGURATION

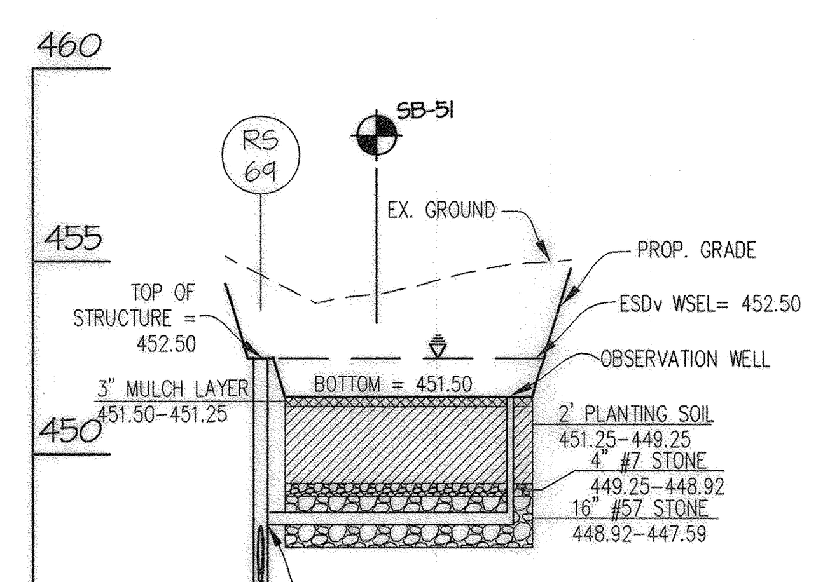
MICRO-BIORETENTION 322 SCALE: 1" = 20'

MBR-322
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 378 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 38,805 SF
STORAGE PROVIDED = 1,768 CU-FT (@452.50)
ESDv PROVIDED =2,351 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 451.50
HIGH-FLOW OUTFALL: RS-69 ('S' INLET, TOP = 452.50)
MINIMUM DAM ELEVATION = 453.00



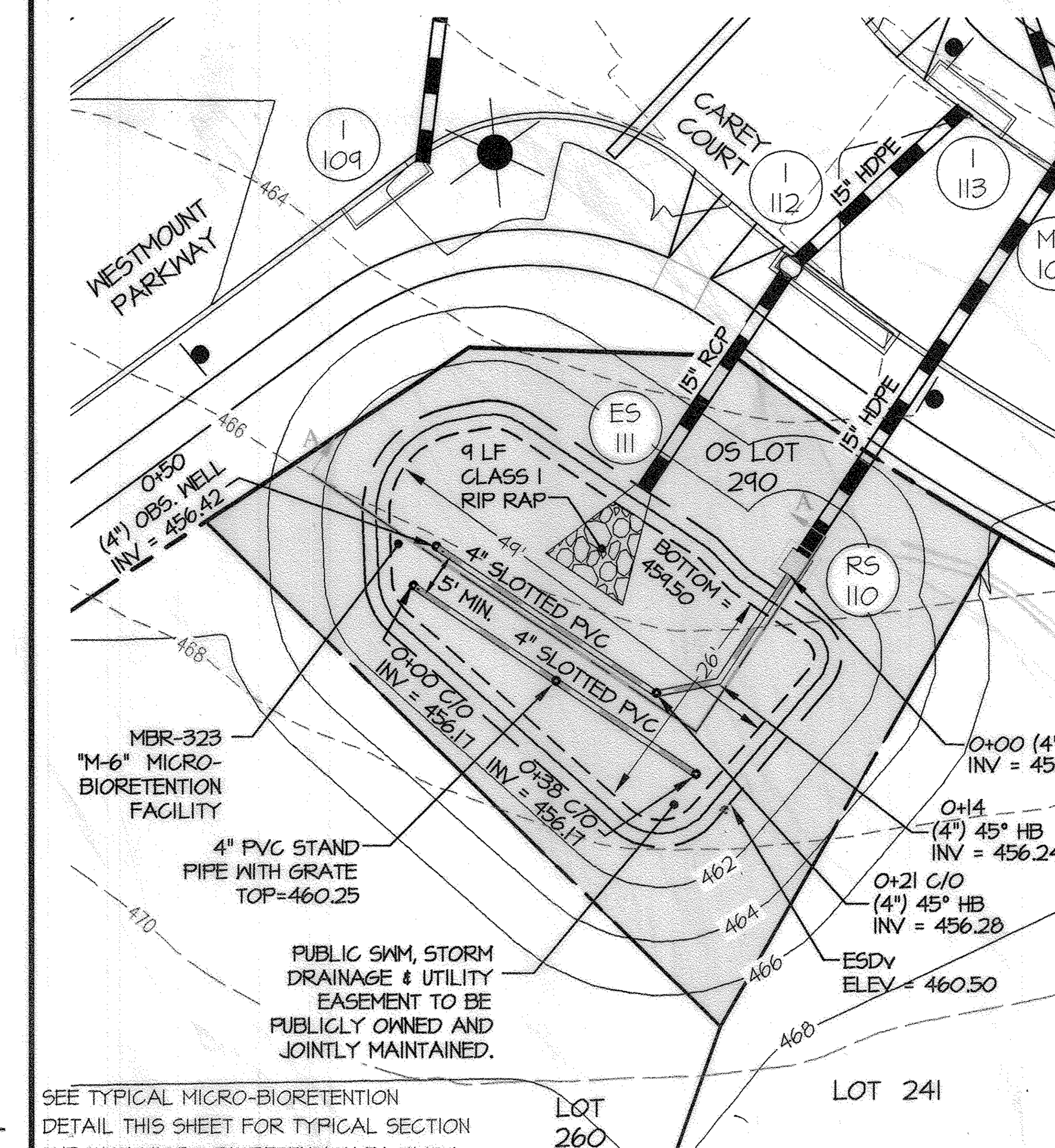
MICRO-BIORETENTION 322 LANDSCAPE PLAN SCALE: 1" = 30'



NOTES:
1) PROVIDE FILTER FABRIC BETWEEN SOIL AND STONE (SIDES ONLY) MSHA CLASS C
2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION

SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

MICRO-BIORETENTION 322 DETAILS

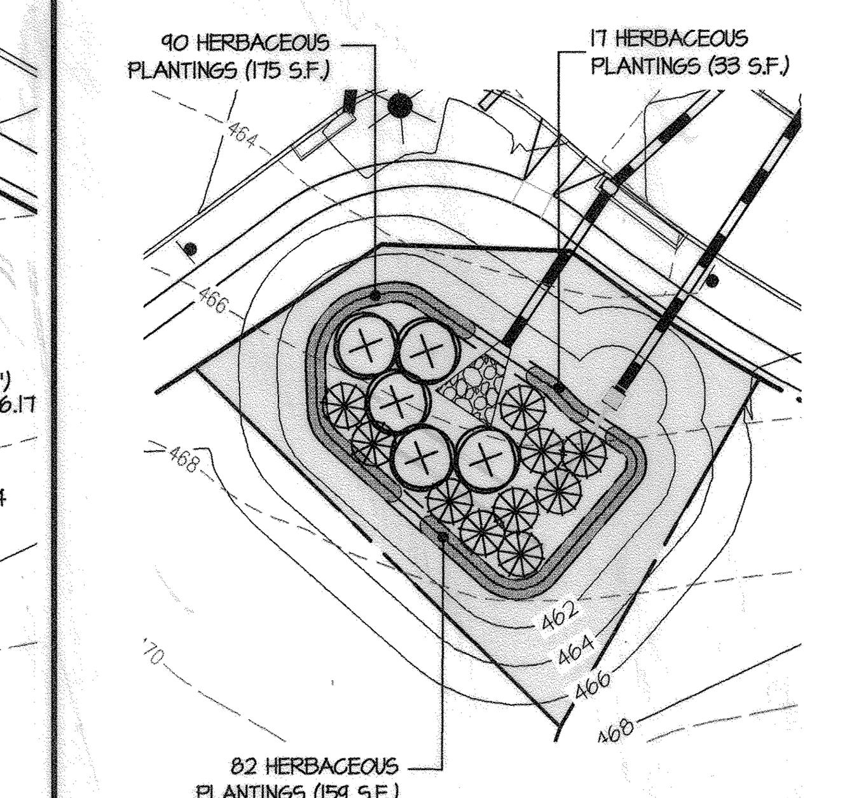


SEE TYPICAL MICRO-BIORETENTION DETAIL THIS SHEET FOR TYPICAL SECTION THROUGH MICRO-BIORETENTION FACILITY AND OUTLET STRUCTURE CONFIGURATION

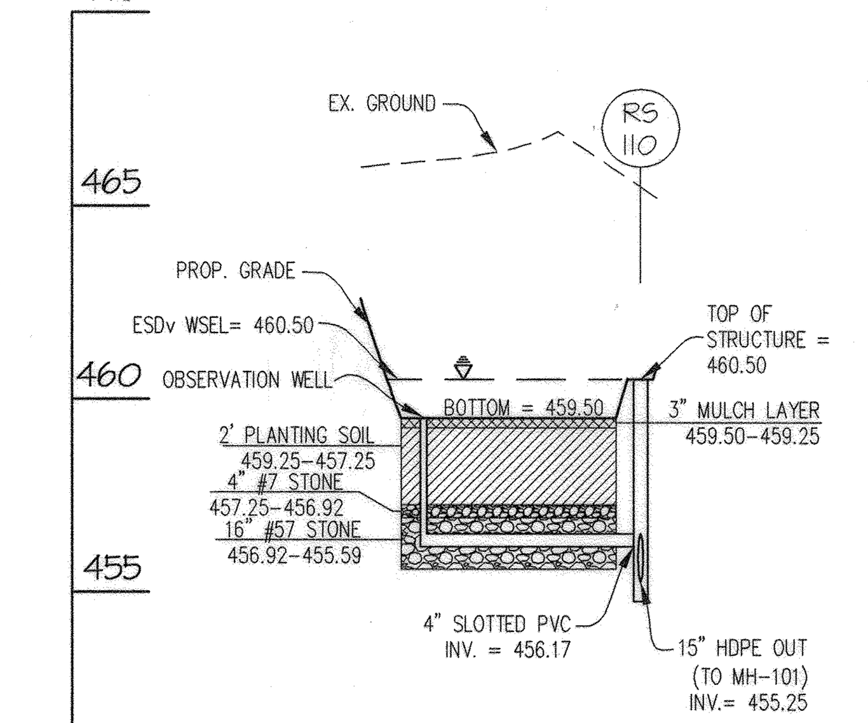
MICRO-BIORETENTION 323 SCALE: 1" = 20'

MBR-323
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 378 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 39,579 SF
STORAGE PROVIDED = 1,347 CU-FT (@460.50)
ESDv PROVIDED = 1,792 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 459.50
HIGH-FLOW OUTFALL: RS-110 ('S' INLET, TOP = 460.50)
MINIMUM DAM ELEVATION = 461.00



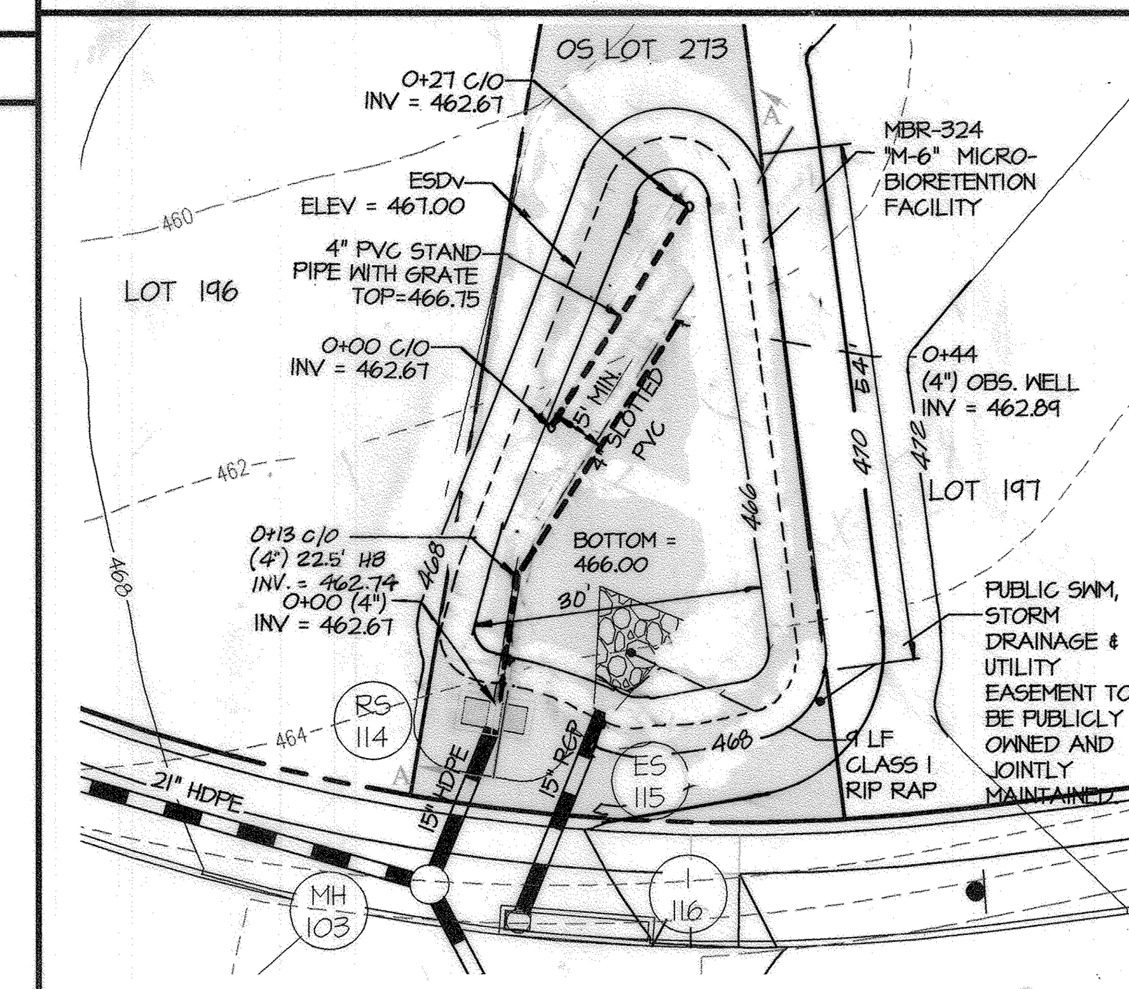
MICRO-BIORETENTION 323 LANDSCAPE PLAN SCALE: 1" = 30'



NOTES:
1) PROVIDE FILTER FABRIC BETWEEN SOIL AND STONE (SIDES ONLY) MSHA CLASS C
2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION

SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

MICRO-BIORETENTION 323 DETAILS

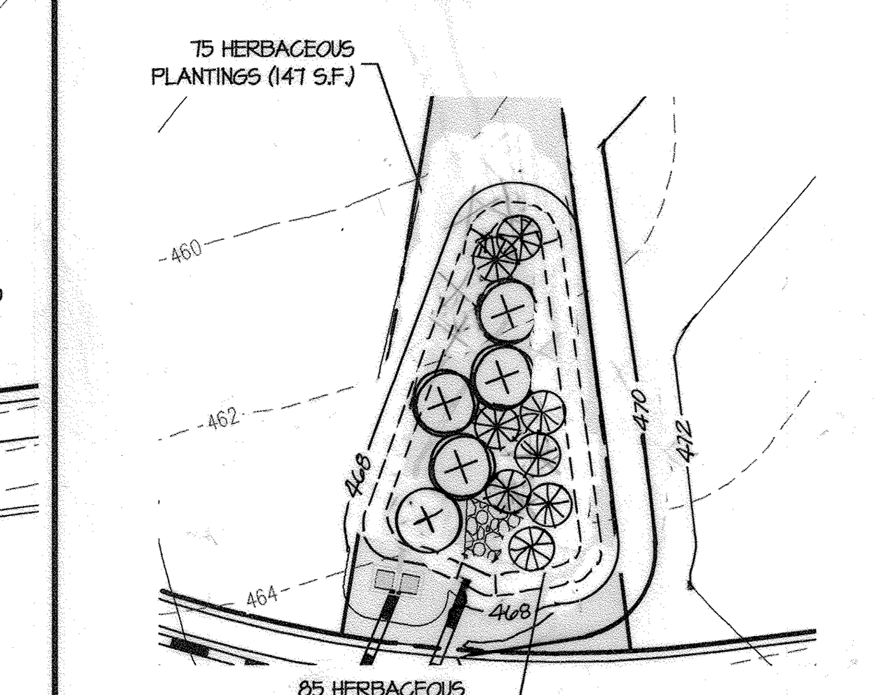


SEE TYPICAL MICRO-BIORETENTION DETAIL THIS SHEET FOR TYPICAL SECTION THROUGH MICRO-BIORETENTION FACILITY AND OUTLET STRUCTURE CONFIGURATION

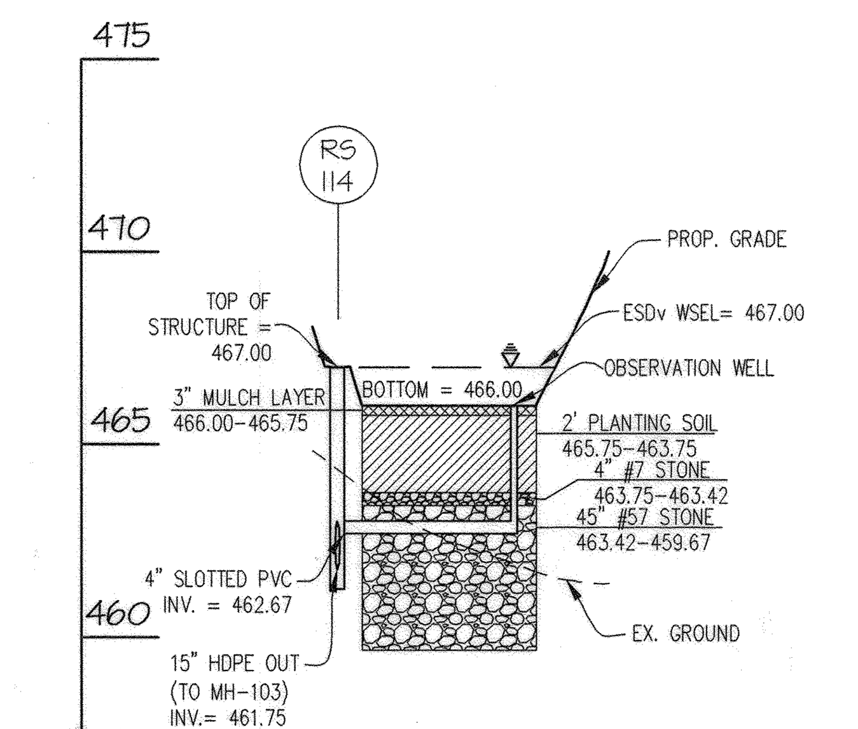
MICRO-BIORETENTION 324 (2) SCALE: 1" = 20'

MBR-324
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 378 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 27,324 SF
STORAGE PROVIDED = 1,283 CU-FT (@467.00)
ESDv PROVIDED = 1,706 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 466.00
HIGH-FLOW OUTFALL: RS-114 ('SS' INLET, TOP = 467.00)
MINIMUM DAM ELEVATION = 467.33



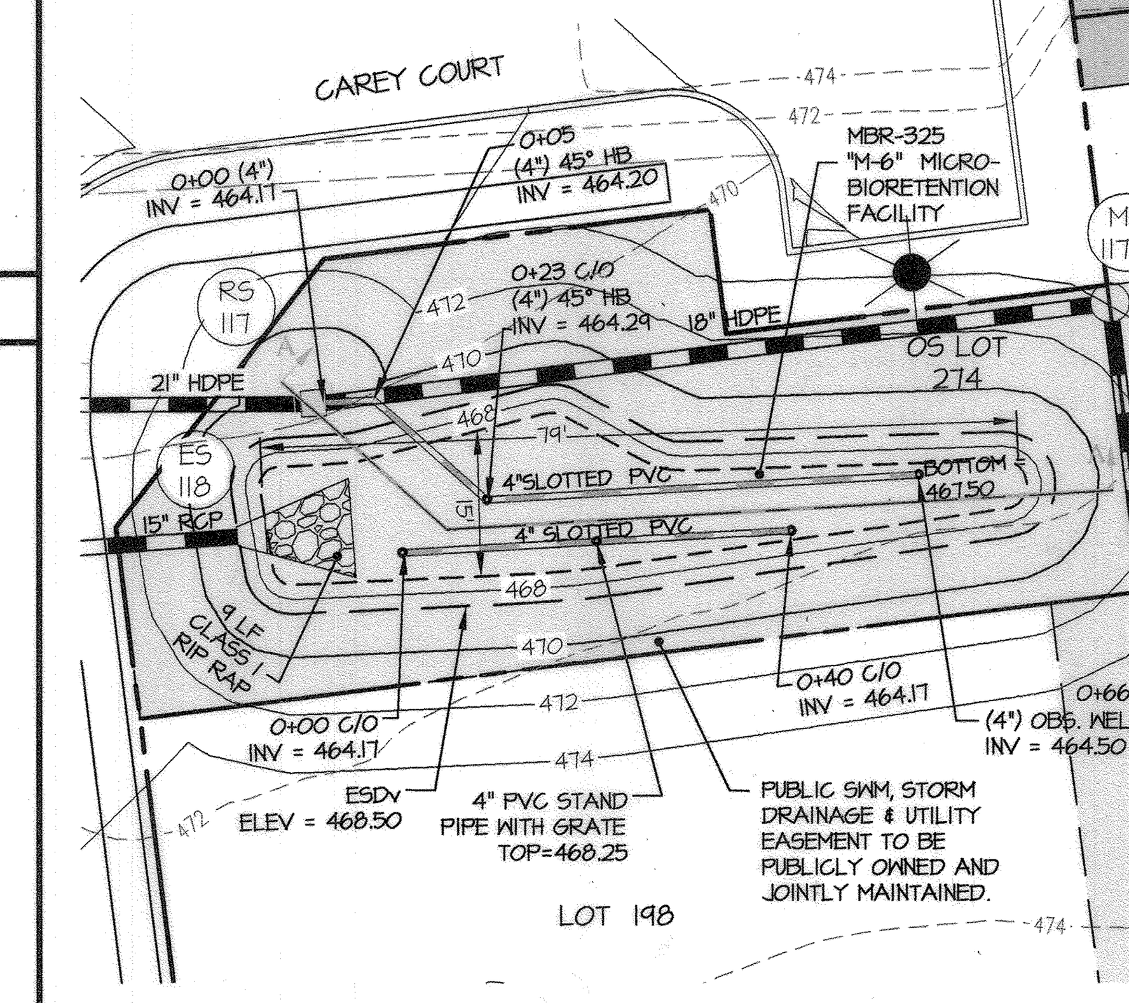
MICRO-BIORETENTION 324 LANDSCAPE PLAN (2) SCALE: 1" = 30'



NOTES:
1) PROVIDE FILTER FABRIC BETWEEN SOIL AND STONE (SIDES ONLY) MSHA CLASS C
2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION

SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

MICRO-BIORETENTION 324 DETAILS

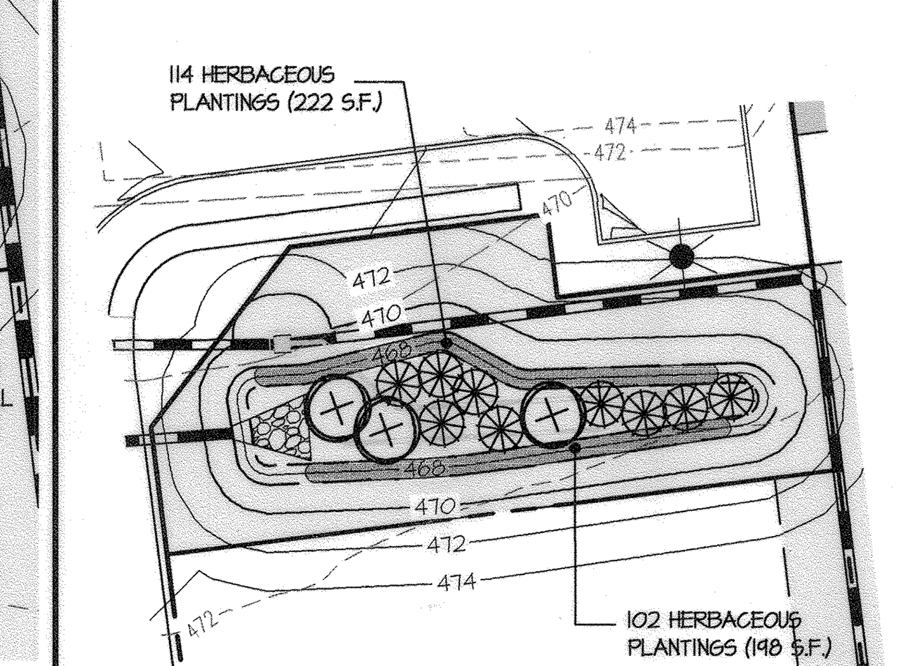


SEE TYPICAL MICRO-BIORETENTION DETAIL THIS SHEET FOR TYPICAL SECTION THROUGH MICRO-BIORETENTION FACILITY AND OUTLET STRUCTURE CONFIGURATION

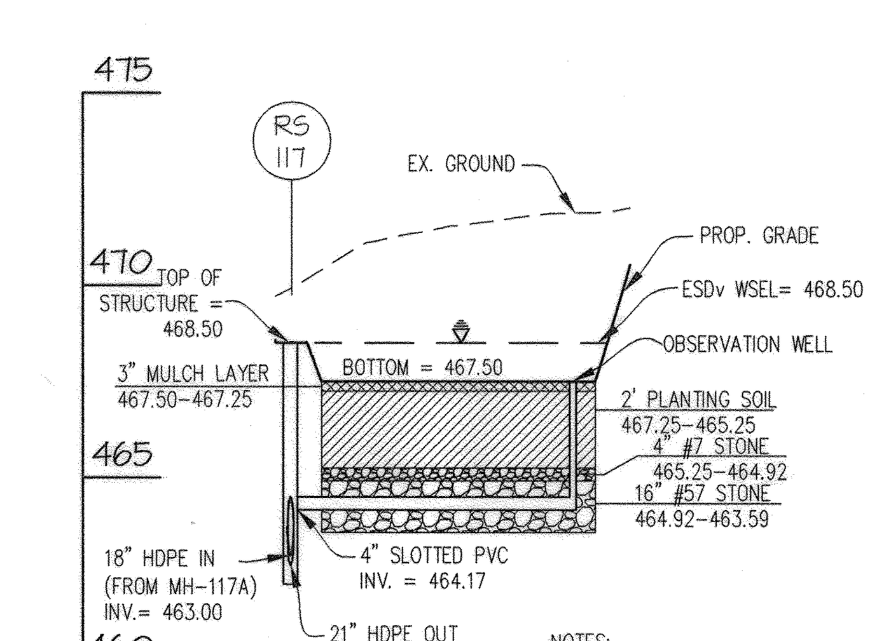
MICRO-BIORETENTION 325 SCALE: 1" = 20'

MBR-325
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 378 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 21,848 SF
STORAGE PROVIDED = 1,099 CU-FT (@468.50)
ESDv PROVIDED = 1,462 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 467.50
HIGH-FLOW OUTFALL: RS-117 ('S' INLET, TOP = 468.50)
MINIMUM DAM ELEVATION = 468.83



MICRO-BIORETENTION 325 LANDSCAPE PLAN SCALE: 1" = 30'



NOTES:
1) PROVIDE FILTER FABRIC BETWEEN SOIL AND STONE (SIDES ONLY) MSHA CLASS C
2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION

SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

MICRO-BIORETENTION 325 DETAILS

0 4 10 20 40
1 inch = 20 ft.

0 6 15 30 60
1 inch = 30 ft.

NOTE:
FOR TOTAL PIPE LENGTH WITHIN STORMWATER MANAGEMENT DEVICES, SEE SHEET 56.

MICRO-BIORETENTION PLANT LIST (for this sheet)

SYMBOL	QTY.	NAMES (BOTANICAL / SCIENTIFIC)	SIZE	ROOT/COMMENTS
SHRUBS *				
⊗	113	CORNUS SERICEA 'RUBY'/ RUBY RED OSIER DOGWOOD	18"-24" SPR.	CONTAINER
⊛	37	ITEA VIRGINICA 'HENRY'S GARNET/ VIRGINIA SWEETSPIRE	18"-24" SPR.	CONTAINER
HERBACEOUS *				
▒	907	PROVIDE AN EVEN MIX OF THE FOLLOWING PLANTS IN EACH MICRO-BIO: -HERMEROCALLIS 'STRAWBERRY CANDY' DAYLILY -HERMEROCALLIS 'JOAN SENIOR' DAYLILY -KALMIA ANGUSTIFOLIA/SHEEP LAUREL -ELEOCHARIS OVATA OBTUSA/BLUNT SPIKE RUSH	18" O.C.	CONTAINER

* SEE SHEET 13 FOR SHRUB AND HERBACEOUS PLANTING DETAILS

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 6-27-19
Chief, Development Engineering Division — Date 6-24-19

GLW
PLANNING | ENGINEERING | SURVEYING
3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY: JRD
DRAWN BY: JRD
CHECKED BY: DEV

DATE	REVISION	BY	APP'R.
2021-03-17	REVISE MICRO-BIO 324 PLAN AND 324 LANDSCAPING PLAN	HKJ	DEV

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975, EXPIRATION DATE: MAY 26, 2020
1/2/19

STATE OF MARYLAND — CARLTON KENNETH GUTSCHICK — NO. 12975 — PROFESSIONAL ENGINEER

STORMWATER MANAGEMENT DETAILS

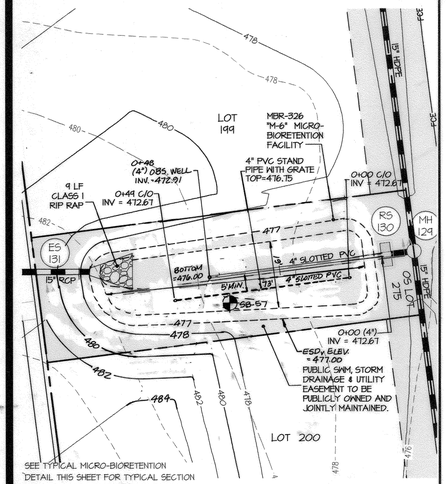
WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	60 OF 92

F 17-001

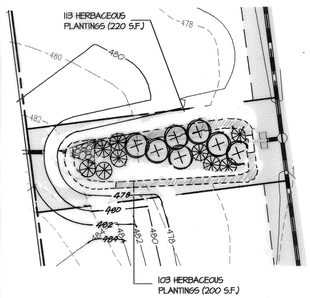
L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PH3)\13013_60_ESD DETAILS-5(321-325).dwg. PLOTTED: 12/31/2018 12:26 PM, LAST SAVED: 12/28/2018 10:37 AM, PLOTTED BY: Jennifer R. Dicks



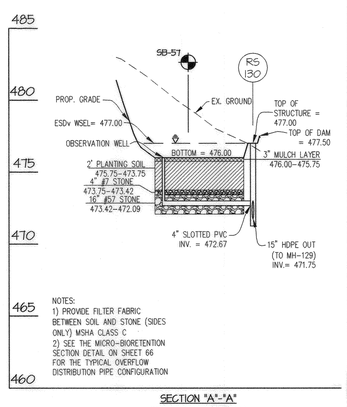
MICRO-BIORETENTION 326 (E) SCALE: 1" = 20'

MBR-326
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 318 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 44,371 SF
STORAGE PROVIDED = 1,550 CU-FT (@471.00)
ESDv PROVIDED = 2,062 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 476.00
HIGH-FLOW OUTFALL: RS-130 ('55' INLET, TOP = 477.00)
MINIMUM DAM ELEVATION = 477.50

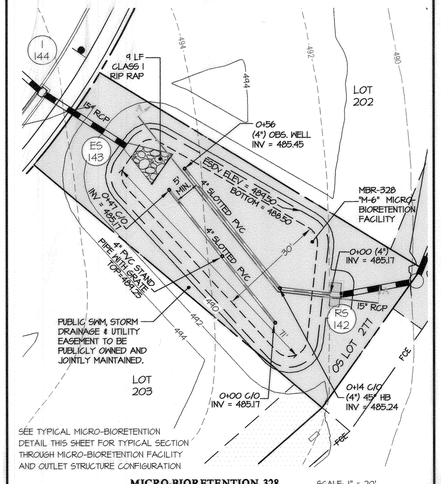


MICRO-BIORETENTION 326 LANDSCAPE PLAN (E) SCALE: 1" = 30'



SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

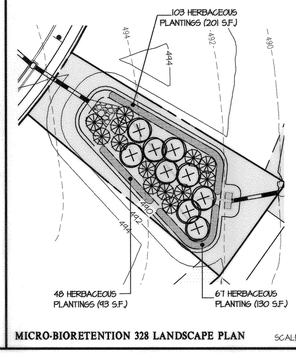
MICRO-BIORETENTION 326 DETAILS



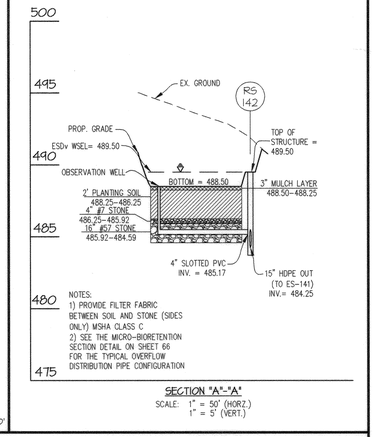
MICRO-BIORETENTION 328 SCALE: 1" = 20'

MBR-328
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 318 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 28,751 SF
STORAGE PROVIDED = 1,821 CU-FT (@489.50)
ESDv PROVIDED = 2,422 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 488.50
HIGH-FLOW OUTFALL: RS-142 ('55' INLET, TOP = 489.50)
MINIMUM DAM ELEVATION = 489.83

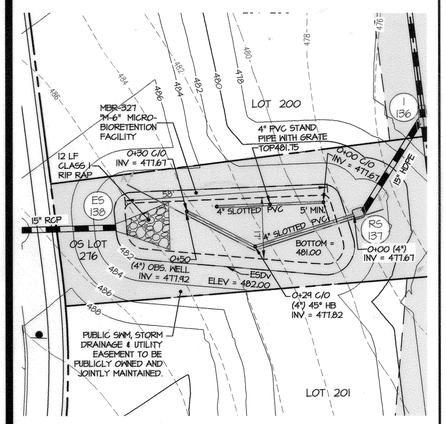


MICRO-BIORETENTION 328 LANDSCAPE PLAN SCALE: 1" = 30'



SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

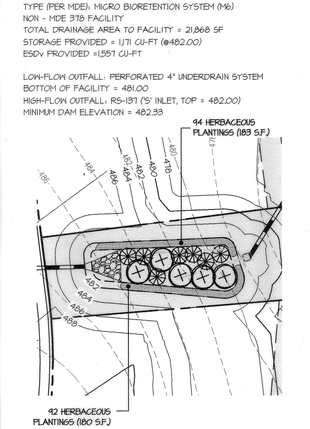
MICRO-BIORETENTION 328 DETAILS



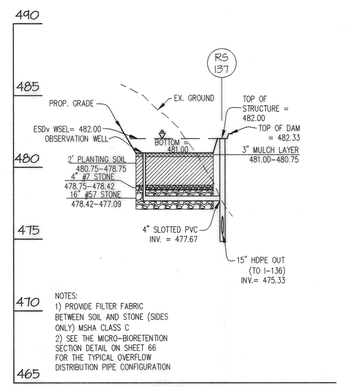
MICRO-BIORETENTION 327 SCALE: 1" = 20'

MBR-327
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 318 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 21,868 SF
STORAGE PROVIDED = 1,171 CU-FT (@482.00)
ESDv PROVIDED =1,551 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 481.00
HIGH-FLOW OUTFALL: RS-131 ('5' INLET, TOP = 482.00)
MINIMUM DAM ELEVATION = 482.33

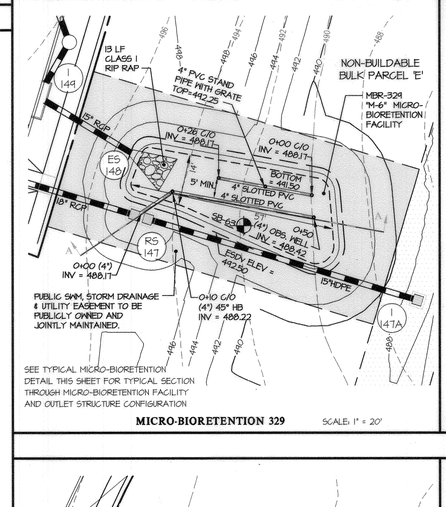


MICRO-BIORETENTION 327 LANDSCAPE PLAN SCALE: 1" = 30'



SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

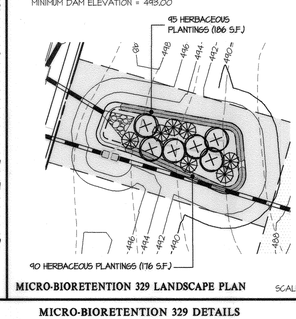
MICRO-BIORETENTION 327 DETAILS



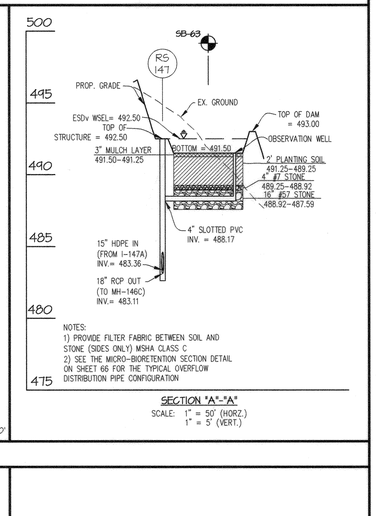
MICRO-BIORETENTION 329 SCALE: 1" = 20'

MBR-329
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 318 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 28,125 SF
STORAGE PROVIDED = 1,230 CU-FT (@492.50)
ESDv PROVIDED = 1,836 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 491.50
HIGH-FLOW OUTFALL: RS-147 ('55' INLET, TOP = 492.50)
MINIMUM DAM ELEVATION = 493.00

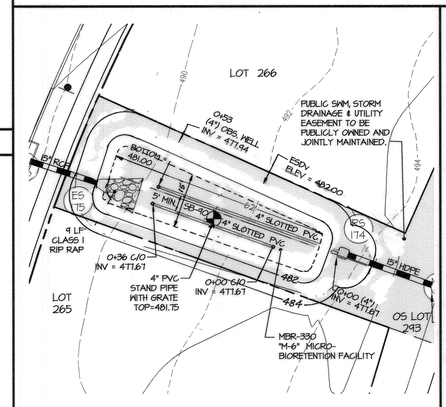


MICRO-BIORETENTION 329 LANDSCAPE PLAN SCALE: 1" = 30'



SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

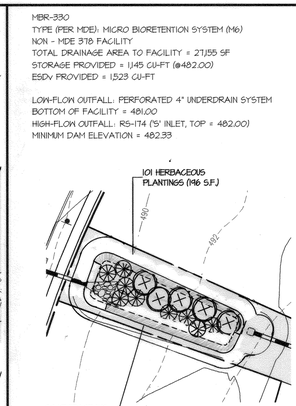
MICRO-BIORETENTION 329 DETAILS



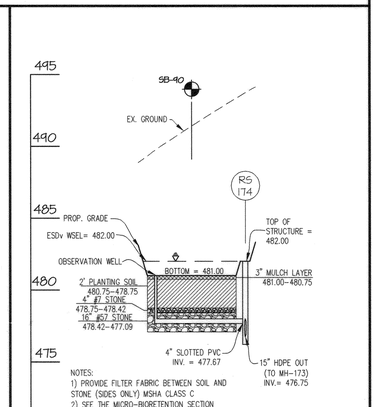
MICRO-BIORETENTION 330 (E) SCALE: 1" = 20'

MBR-330
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 318 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 27,155 SF
STORAGE PROVIDED = 1,145 CU-FT (@482.00)
ESDv PROVIDED = 1,523 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 481.00
HIGH-FLOW OUTFALL: RS-174 ('5' INLET, TOP = 482.00)
MINIMUM DAM ELEVATION = 482.33



MICRO-BIORETENTION 330 LANDSCAPE PLAN (E) SCALE: 1" = 30'



SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

MICRO-BIORETENTION 330 DETAILS

0 4 10 20 40
1 inch = 20 ft.

0 6 15 30 60
1 inch = 30 ft.

NOTE:
FOR TOTAL PIPE LENGTH WITHIN STORMWATER MANAGEMENT DEVICES, SEE SHEET 56.

MICRO-BIORETENTION PLANT LIST

SYMBOL	QTY.	NAMES (BOTANICAL / SCIENTIFIC)	SIZE	ROOT/COMMENTS
SHRUBS *				
	121	CORNUS SERICEA 'RUBY' / RUBY RED OSIER DOGWOOD	18"-24" SPR.	CONTAINER
	70	ITEA VIRGINICA 'HENRY'S GARNET' / VIRGINIA SWEETSPIRE	18"-24" SPR.	CONTAINER
HERBACEOUS *				
	995	PROVIDE AN EVEN MIX OF THE FOLLOWING PLANTS IN EACH MICRO-BIO: -HEMEROCALLIS 'STRAWBERRY CANDY' DAYLILY -HEMEROCALLIS 'JOAN SENIOR' DAYLILY -KALMIA ANGUSTIFOLIA/SHEEP LAUREL -ELEOCHARIS OVATA OBTUSA/BLUNT SPIKE RUSH	18" O.C.	CONTAINER

* SEE SHEET 13 FOR SHRUB AND HERBACEOUS PLANTING DETAILS

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 6-27-19
Chief, Development Engineering Division — Date 6.24.19

GLW
PLANNING | ENGINEERING | SURVEYING
3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:	JRD		
DRAWN BY:	JRD		
CHECKED BY:	DEV		
2021-05-17	REVISED MICROBIOS 326 & 330 PLANS AND 326 & 330 LANDSCAPING PLANS	HCJ	DEV
DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975, EXPIRATION DATE: MAY 26, 2020
1/2/19

STORMWATER MANAGEMENT DETAILS

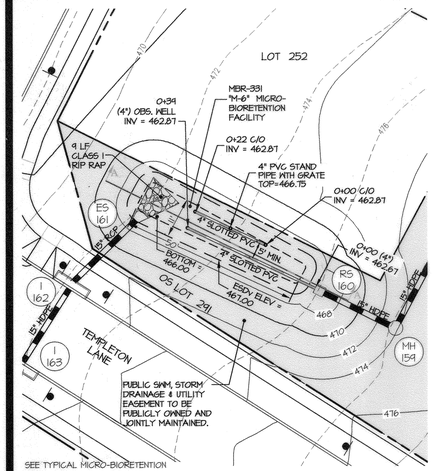
WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	61 OF 92

F 17-001

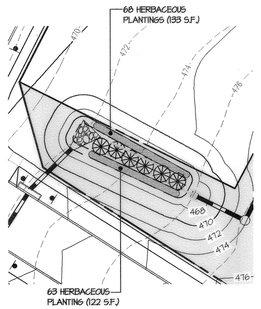
L:\CADD\DRAWINGS\2013\PLANS BY GLW\ROADS-SD (PHASE)\2013_61_ESD DETAILS-6(326-330).dwg, 5/17/2021 8:21:55 AM, JEFF DEVLIN, HP DesignJet T1700dr PS



MICRO-BIORETENTION 331 SCALE: 1" = 20'

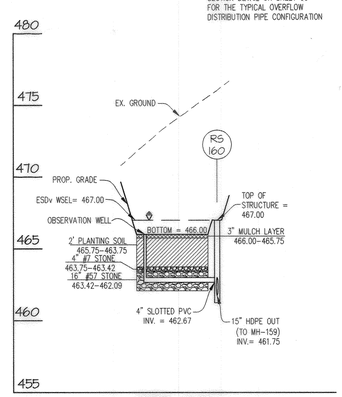
MBR-331
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 318 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 38,030 SF
STORAGE PROVIDED = 553 CU-FT (@467.00)
ESDv PROVIDED = 735 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 466.00
HIGH-FLOW OUTFALL: RS-160 ('S' INLET, TOP = 467.00)
MINIMUM DAM ELEVATION = 467.33



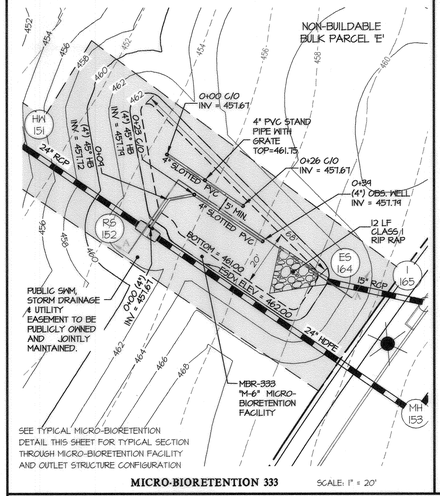
MICRO-BIORETENTION 331 LANDSCAPE PLAN SCALE: 1" = 30'

NOTES:
1) PROVIDE FILTER FABRIC BETWEEN SOIL AND STONE (SIDES ONLY) MSHA CLASS C
2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION



SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

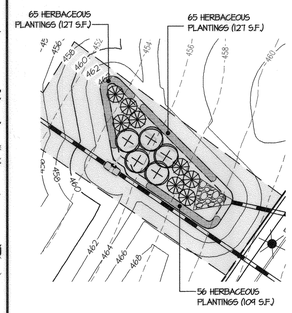
MICRO-BIORETENTION 331 DETAILS



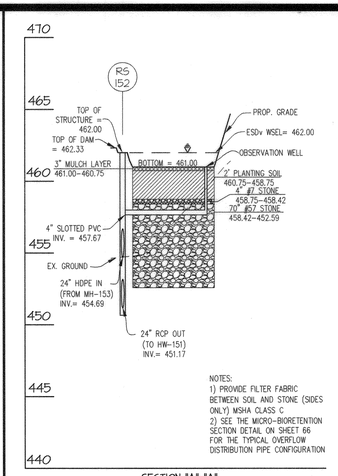
MICRO-BIORETENTION 333 SCALE: 1" = 20'

MBR-333
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 318 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 44,244 SF
STORAGE PROVIDED = 1,240 CU-FT (@462.00)
ESDv PROVIDED = 1,716 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 461.00
HIGH-FLOW OUTFALL: RS-152 ('S6' INLET, TOP = 462.00)
MINIMUM DAM ELEVATION = 462.33



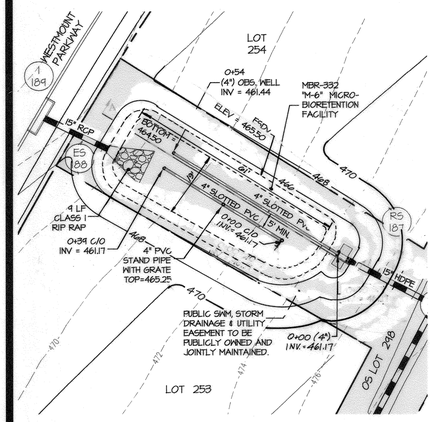
MICRO-BIORETENTION 333 LANDSCAPE PLAN SCALE: 1" = 30'



NOTES:
1) PROVIDE FILTER FABRIC BETWEEN SOIL AND STONE (SIDES ONLY) MSHA CLASS C
2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION

SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

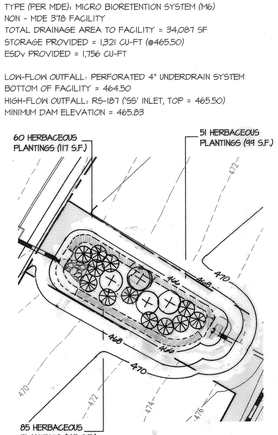
MICRO-BIORETENTION 333 DETAILS



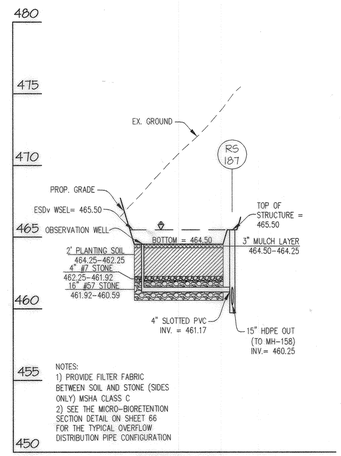
MICRO-BIORETENTION 332 SCALE: 1" = 20'

MBR-332
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 318 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 34,087 SF
STORAGE PROVIDED = 1,321 CU-FT (@465.50)
ESDv PROVIDED = 1,756 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 464.50
HIGH-FLOW OUTFALL: RS-187 ('S5' INLET, TOP = 465.50)
MINIMUM DAM ELEVATION = 465.83



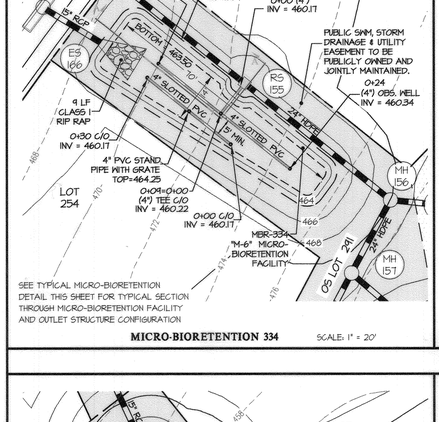
MICRO-BIORETENTION 332 LANDSCAPE PLAN SCALE: 1" = 30'



NOTES:
1) PROVIDE FILTER FABRIC BETWEEN SOIL AND STONE (SIDES ONLY) MSHA CLASS C
2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION

SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

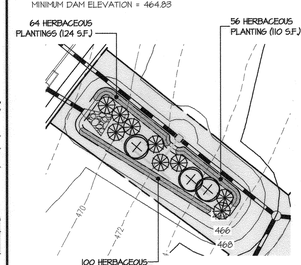
MICRO-BIORETENTION 332 DETAILS



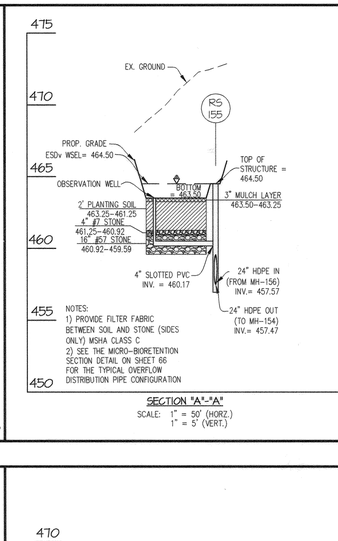
MICRO-BIORETENTION 334 SCALE: 1" = 20'

MBR-334
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 318 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 45,270 SF
STORAGE PROVIDED = 1,161 CU-FT (@464.50)
ESDv PROVIDED = 1,552 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 463.50
HIGH-FLOW OUTFALL: RS-155 ('S5' INLET, TOP = 464.50)
MINIMUM DAM ELEVATION = 464.83



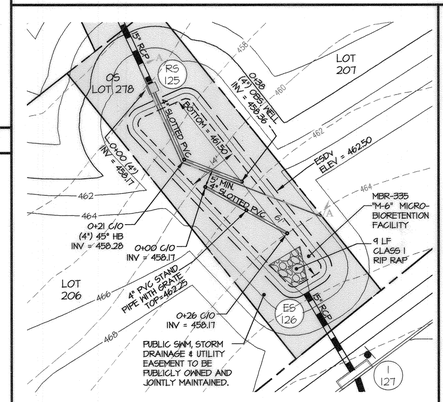
MICRO-BIORETENTION 334 LANDSCAPE PLAN SCALE: 1" = 30'



NOTES:
1) PROVIDE FILTER FABRIC BETWEEN SOIL AND STONE (SIDES ONLY) MSHA CLASS C
2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION

SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

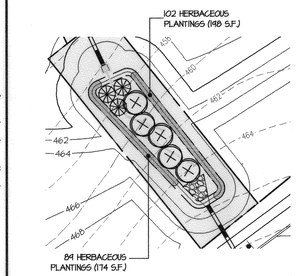
MICRO-BIORETENTION 334 DETAILS



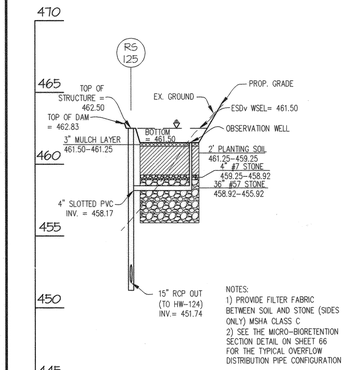
MICRO-BIORETENTION 335 SCALE: 1" = 20'

MBR-335
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 318 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 22,412 SF
STORAGE PROVIDED = 1,065 CU-FT (@462.50)
ESDv PROVIDED = 1,416 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 461.50
HIGH-FLOW OUTFALL: RS-125 ('S' INLET, TOP = 462.50)
MINIMUM DAM ELEVATION = 462.83



MICRO-BIORETENTION 335 LANDSCAPE PLAN SCALE: 1" = 30'



NOTES:
1) PROVIDE FILTER FABRIC BETWEEN SOIL AND STONE (SIDES ONLY) MSHA CLASS C
2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION

SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

MICRO-BIORETENTION 335 DETAILS

0 4 10 20 40
1 inch = 20 ft.

0 6 15 30 60
1 inch = 30 ft.

NOTE:
FOR TOTAL PIPE LENGTH WITHIN STORMWATER MANAGEMENT DEVICES, SEE SHEET 56.

MICRO-BIORETENTION PLANT LIST (for this sheet)

SYMBOL	QTY.	NAMES (BOTANICAL / SCIENTIFIC)	SIZE	ROOT/COMMENTS
SHRUBS *				
	17	CORNUS SERICEA 'RUBY'/ RUBY RED OSIER DOGWOOD	18"-24" SPR.	CONTAINER
	38	ITEA VIRGINICA 'HENRY'S GARNET'/ VIRGINIA SWEETSPIRE	18"-24" SPR.	CONTAINER
HERBACEOUS *				
	424	PROVIDE AN EVEN MIX OF THE FOLLOWING PLANTS IN EACH MICRO-BIO: -HEMEROCALLIS 'STRAWBERRY CANDY' DAYLILY -HEMEROCALLIS 'JOAN SENIOR' DAYLILY -KALMIA ANGUSTIFOLIA/SHEEP LAUREL -ELEOCHARIS OVATA OBTUSA/BLUNT SPIKE RUSH	18" O.C.	CONTAINER

* SEE SHEET 13 FOR SHRUB AND HERBACEOUS PLANTING DETAILS

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.24.19

GLW
PLANNING | ENGINEERING | SURVEYING
3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY: JRD			
DRAWN BY: JRD			
CHECKED BY: DEV	2021-03-17	REVISE MICRO-BIO 332 PLAN AND 332 LANDSCAPING PLAN	HKJ / DEV
	DATE	REVISION	BY / APP'R.

PREPARED FOR:
WESTMONT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975
EXPIRATION DATE: MAY 26, 2020

6/2/19

STORMWATER MANAGEMENT DETAILS

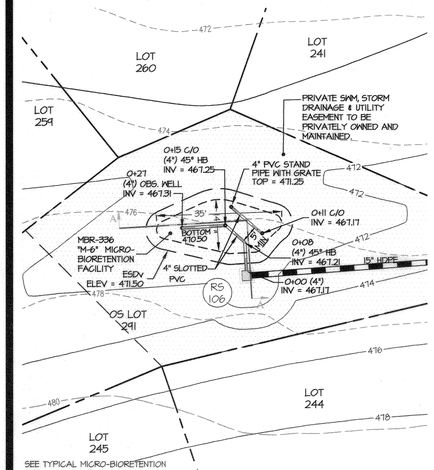
WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	62 OF 92

F 17-001

L:\CADD\DRAWINGS\1303\PLANS BY GLW\ROADS-SD (PH3)\1303_62_ESD DETAILS-7(331-335).dwg, 6/2/2019 8:39:08 AM, Daniel K. Stuber

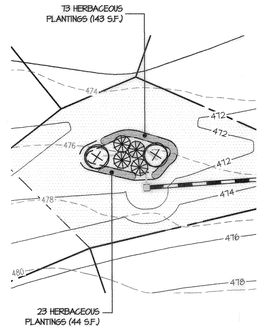


SEE TYPICAL MICRO-BIORETENTION DETAIL THIS SHEET FOR TYPICAL SECTION THROUGH MICRO-BIORETENTION FACILITY AND OUTLET STRUCTURE CONFIGURATION

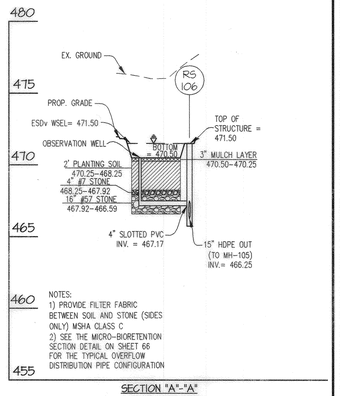
MICRO-BIORETENTION 336 SCALE: 1" = 20'

MBR-336
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 318 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 29,856 SF
STORAGE PROVIDED = 441 CU-FT (@471.50)
ESDV PROVIDED = 660 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 470.50
HIGH-FLOW OUTFALL: RS-106 ('S' INLET, TOP = 471.50)
MINIMUM DAM ELEVATION = 471.83



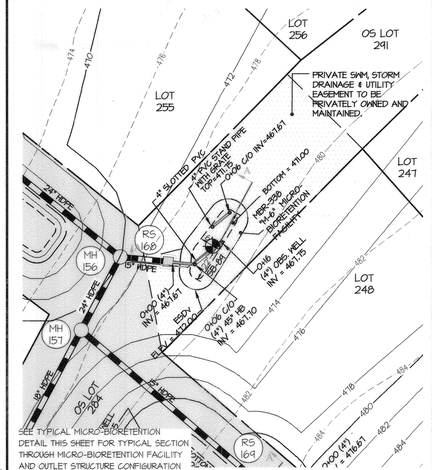
MICRO-BIORETENTION 336 LANDSCAPE PLAN SCALE: 1" = 30'



NOTES:
1) PROVIDE FILTER FABRIC BETWEEN SOIL AND STONE (SIDES ONLY) MSHA CLASS C
2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION

SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

MICRO-BIORETENTION 336 DETAILS

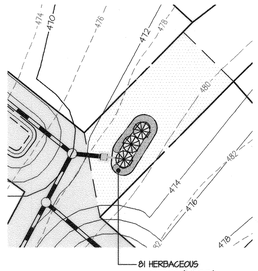


SEE TYPICAL MICRO-BIORETENTION DETAIL THIS SHEET FOR TYPICAL SECTION THROUGH MICRO-BIORETENTION FACILITY AND OUTLET STRUCTURE CONFIGURATION

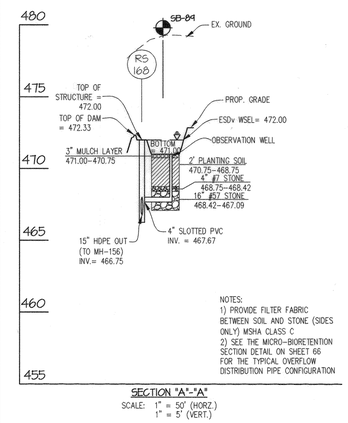
MICRO-BIORETENTION 338 SCALE: 1" = 20'

MBR-338
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 318 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 15,980 SF
STORAGE PROVIDED = 201 CU-FT (@472.00)
ESDV PROVIDED = 267 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 471.00
HIGH-FLOW OUTFALL: RS-168 ('S' INLET, TOP = 472.00)
MINIMUM DAM ELEVATION = 472.33



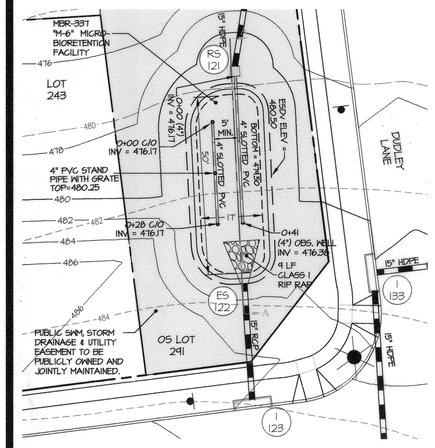
MICRO-BIORETENTION 338 LANDSCAPE PLAN SCALE: 1" = 30'



NOTES:
1) PROVIDE FILTER FABRIC BETWEEN SOIL AND STONE (SIDES ONLY) MSHA CLASS C
2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION

SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

MICRO-BIORETENTION 338 DETAILS

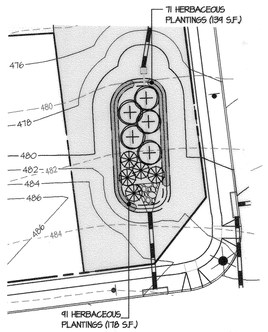


SEE TYPICAL MICRO-BIORETENTION DETAIL THIS SHEET FOR TYPICAL SECTION THROUGH MICRO-BIORETENTION FACILITY AND OUTLET STRUCTURE CONFIGURATION

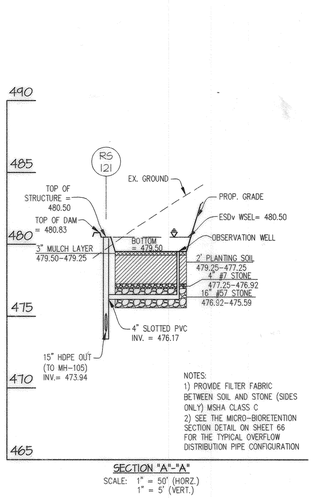
MICRO-BIORETENTION 337 SCALE: 1" = 20'

MBR-337
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 318 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 18,702 SF
STORAGE PROVIDED = 1,022 CU-FT (@480.50)
ESDV PROVIDED = 1,394 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 479.50
HIGH-FLOW OUTFALL: RS-121 ('S' INLET, TOP = 480.50)
MINIMUM DAM ELEVATION = 480.83



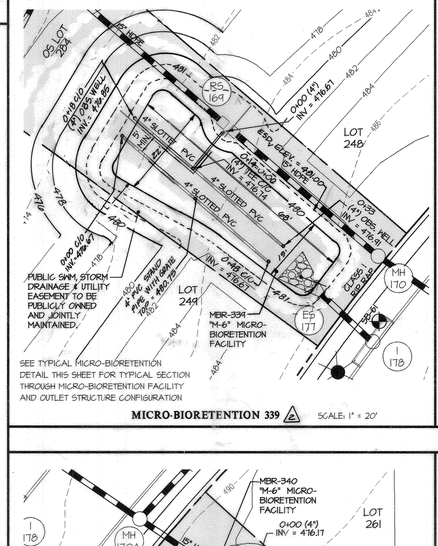
MICRO-BIORETENTION 337 LANDSCAPE PLAN SCALE: 1" = 30'



NOTES:
1) PROVIDE FILTER FABRIC BETWEEN SOIL AND STONE (SIDES ONLY) MSHA CLASS C
2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION

SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

MICRO-BIORETENTION 337 DETAILS

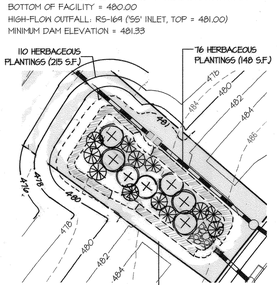


SEE TYPICAL MICRO-BIORETENTION DETAIL THIS SHEET FOR TYPICAL SECTION THROUGH MICRO-BIORETENTION FACILITY AND OUTLET STRUCTURE CONFIGURATION

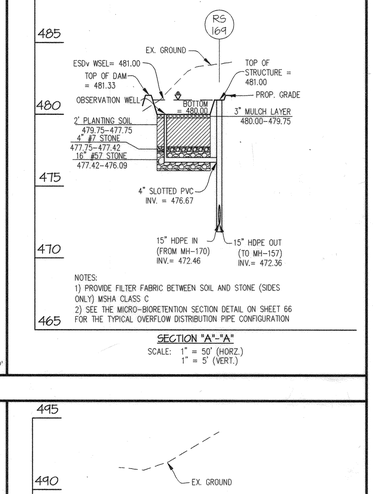
MICRO-BIORETENTION 339 SCALE: 1" = 20'

MBR-339
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 318 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 36,886 SF
STORAGE PROVIDED = 1,489 CU-FT (@481.00)
ESDV PROVIDED = 1,980 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 480.00
HIGH-FLOW OUTFALL: RS-164 ('SS' INLET, TOP = 481.00)
MINIMUM DAM ELEVATION = 481.33



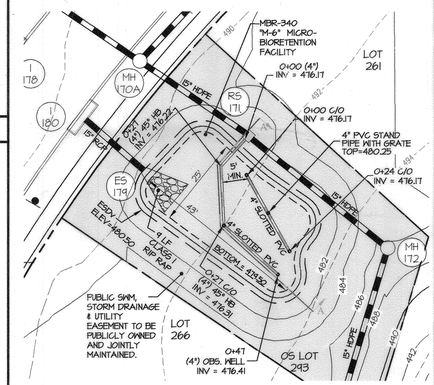
MICRO-BIORETENTION 339 LANDSCAPE PLAN SCALE: 1" = 30'



NOTES:
1) PROVIDE FILTER FABRIC BETWEEN SOIL AND STONE (SIDES ONLY) MSHA CLASS C
2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION

SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

MICRO-BIORETENTION 339 DETAILS

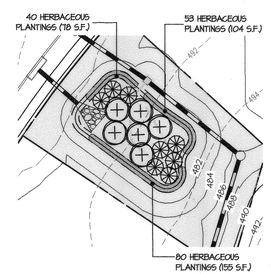


SEE TYPICAL MICRO-BIORETENTION DETAIL THIS SHEET FOR TYPICAL SECTION THROUGH MICRO-BIORETENTION FACILITY AND OUTLET STRUCTURE CONFIGURATION

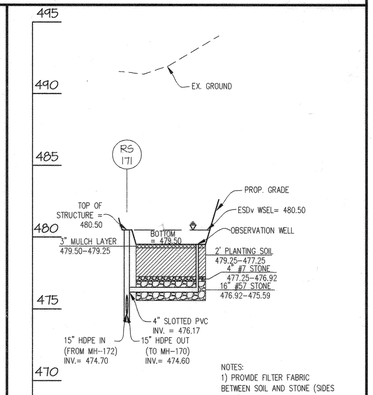
MICRO-BIORETENTION 340 SCALE: 1" = 20'

MBR-340
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 318 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 37,448 SF
STORAGE PROVIDED = 1,315 CU-FT (@480.50)
ESDV PROVIDED = 1,748 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 479.50
HIGH-FLOW OUTFALL: RS-171 ('S' INLET, TOP = 480.50)
MINIMUM DAM ELEVATION = 481.00



MICRO-BIORETENTION 340 LANDSCAPE PLAN SCALE: 1" = 30'



NOTES:
1) PROVIDE FILTER FABRIC BETWEEN SOIL AND STONE (SIDES ONLY) MSHA CLASS C
2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION

SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

MICRO-BIORETENTION 340 DETAILS

0 4 10 20 40
1 inch = 20 ft.

0 6 15 30 60
1 inch = 30 ft.

NOTE:
FOR TOTAL PIPE LENGTH WITHIN STORMWATER MANAGEMENT DEVICES, SEE SHEET 56.

MICRO-BIORETENTION PLANT LIST (for this sheet)

SYMBOL	QTY.	NAMES (BOTANICAL / SCIENTIFIC)	SIZE	ROOT/COMMENTS
SHRUBS *				
⊗	20	CORNUS SERICEA 'RUBY'/ RUBY RED OSIER DOGWOOD	18"-24" SPR.	CONTAINER
⊛	33	ITEA VIRGINICA 'HENRY'S GARNET'/ VIRGINIA SWEETSPIRE	18"-24" SPR.	CONTAINER
HERBACEOUS *				
	741	PROVIDE AN EVEN MIX OF THE FOLLOWING PLANTS IN EACH MICRO-BIO: -HEMEROCALLIS 'STRAWBERRY CANDY' DAYLILY -HEMEROCALLIS 'JOAN SENIOR' DAYLILY -KALMIA ANGUSTIFOLIA/SHEEP LAUREL -ELEOCHARIS OVATA OBTUSA/BLUNT SPIKE RUSH	18" O.C.	CONTAINER

* SEE SHEET 13 FOR SHRUB AND HERBACEOUS PLANTING DETAILS

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.24.19

GLW PLANNING | ENGINEERING | SURVEYING
3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:				
JRD				
DRAWN BY: JRD				
CHECKED BY: DEV	2021-03-17	REVISED MICRO-BIO PLAN 339 AND LANDSCAPING 339 PLAN	HKT	DEV
	DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975, EXPIRATION DATE: MAY 26, 2020

STATE OF MARYLAND — CARLTON KENNETH WEEKS — NO. 12975 — PROFESSIONAL ENGINEER

1/2/19

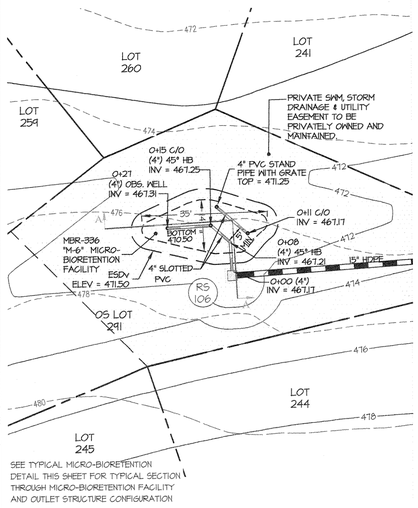
STORMWATER MANAGEMENT DETAILS

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	63 OF 72

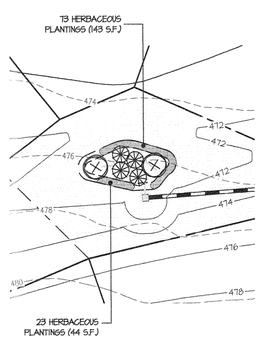
F 17-001



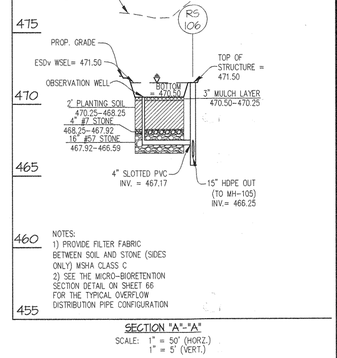
MICRO-BIORETENTION 336 SCALE: 1" = 20'

MBR-336
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 378 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 29,856 SF
STORAGE PROVIDED = 441 CU-FT (@471.50)
ESDv PROVIDED = 660 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 470.50
HIGH-FLOW OUTFALL: RS-106 (5' INLET, TOP = 471.50)
MINIMUM DAM ELEVATION = 471.83



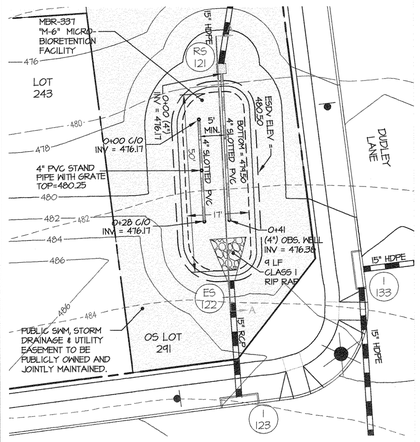
MICRO-BIORETENTION 336 LANDSCAPE PLAN SCALE: 1" = 30'



NOTES:
1) PROVIDE FILTER FABRIC BETWEEN SOIL AND STONE (SIDES ONLY) MSHA CLASS C
2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION

SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

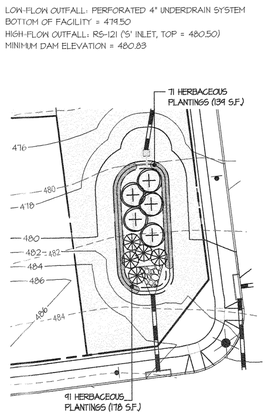
MICRO-BIORETENTION 336 DETAILS



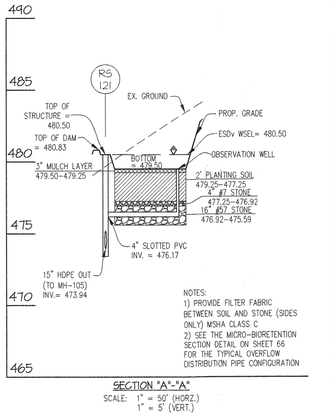
MICRO-BIORETENTION 337 SCALE: 1" = 20'

MBR-337
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 378 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 18,702 SF
STORAGE PROVIDED = 1,022 CU-FT (@480.50)
ESDv PROVIDED = 1,359 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 479.50
HIGH-FLOW OUTFALL: RS-121 (5' INLET, TOP = 480.50)
MINIMUM DAM ELEVATION = 480.83



MICRO-BIORETENTION 337 LANDSCAPE PLAN SCALE: 1" = 30'



NOTES:
1) PROVIDE FILTER FABRIC BETWEEN SOIL AND STONE (SIDES ONLY) MSHA CLASS C
2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION

SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

MICRO-BIORETENTION 337 DETAILS

0 4 10 20 40
1 inch = 20 ft.

0 6 15 30 60
1 inch = 30 ft.

NOTE:
FOR TOTAL PIPE LENGTH WITHIN STORMWATER MANAGEMENT DEVICES, SEE SHEET 56.

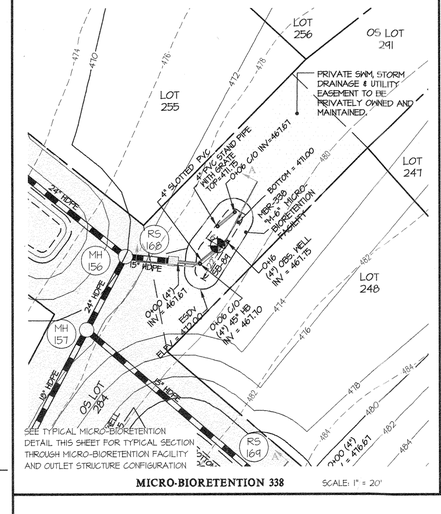
MICRO-BIORETENTION PLANT LIST (for this sheet)

SYMBOL	QTY.	NAMES (BOTANICAL / SCIENTIFIC)	SIZE	ROOT/COMMENTS
SHRUBS *				
	20	CORNUS SERICEA 'RUBY'/ RUBY RED OSIER DOGWOOD	18"-24" SPR.	CONTAINER
	33	ITEA VIRGINICA 'HENRY'S GARNET'/ VIRGINIA SWEETSPIRE	18"-24" SPR.	CONTAINER
HERBACEOUS *				
	741	PROVIDE AN EVEN MIX OF THE FOLLOWING PLANTS IN EACH MICRO-BIO: -HEMEROCALLIS 'STRAWBERRY CANDY' DAYLILY -HEMEROCALLIS 'JOAN SENIOR' DAYLILY -KALMIA ANGUSTIFOLIA/SHEEP LAUREL -ELEOCHARIS OVATA OBTUSA/BLUNT SPIKE RUSH	18" O.C.	CONTAINER

* SEE SHEET 13 FOR SHRUB AND HERBACEOUS PLANTING DETAILS

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 1/29/2019

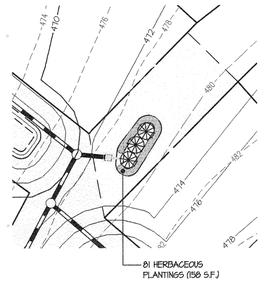
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 6-27-19
Chief, Development Engineering Division — Date 6.24.19



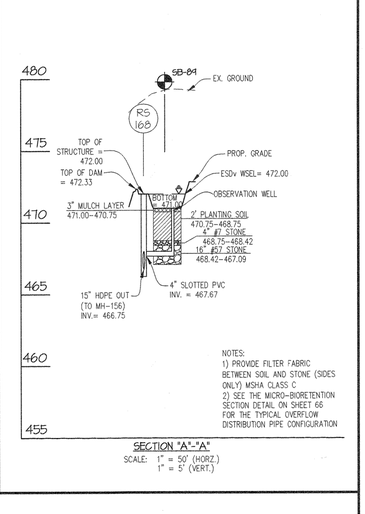
MICRO-BIORETENTION 338 SCALE: 1" = 20'

MBR-338
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 378 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 15,940 SF
STORAGE PROVIDED = 201 CU-FT (@472.00)
ESDv PROVIDED = 261 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 471.00
HIGH-FLOW OUTFALL: RS-168 (5' INLET, TOP = 472.00)
MINIMUM DAM ELEVATION = 472.33



MICRO-BIORETENTION 338 LANDSCAPE PLAN SCALE: 1" = 30'



NOTES:
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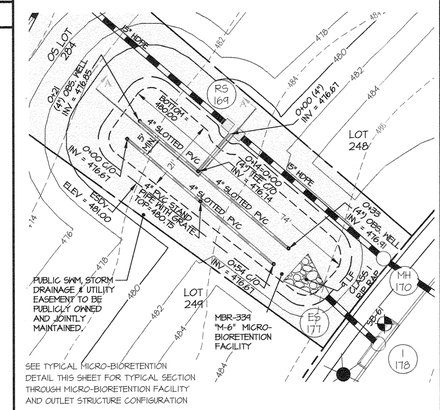
2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION

SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

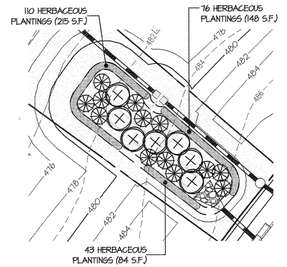
MICRO-BIORETENTION 338 DETAILS



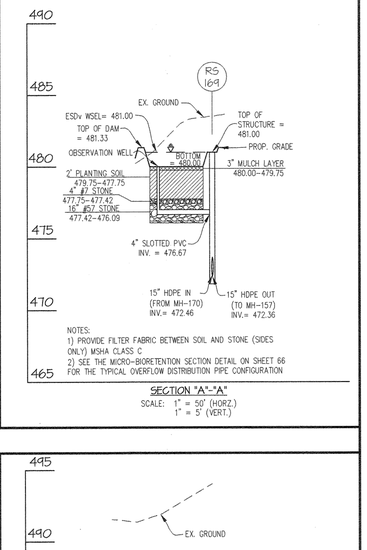
MICRO-BIORETENTION 339 SCALE: 1" = 20'

MBR-339
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 378 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 36,986 SF
STORAGE PROVIDED = 1,489 CU-FT (@481.00)
ESDv PROVIDED = 1,980 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 480.00
HIGH-FLOW OUTFALL: RS-169 (5' INLET, TOP = 481.00)
MINIMUM DAM ELEVATION = 481.33



MICRO-BIORETENTION 339 LANDSCAPE PLAN SCALE: 1" = 30'



NOTES:
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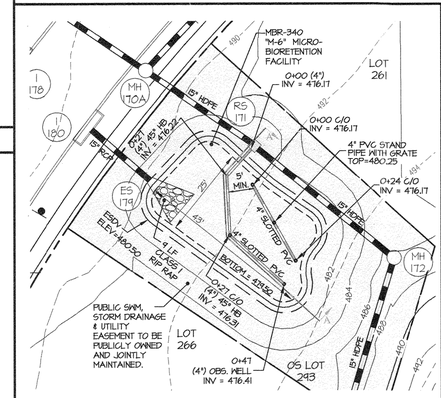
2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION

SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

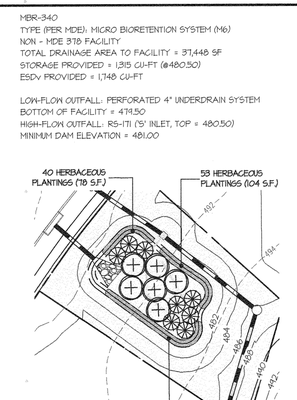
MICRO-BIORETENTION 339 DETAILS



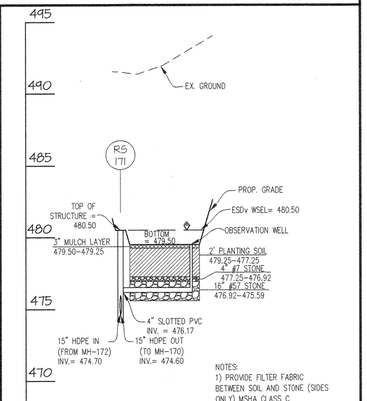
MICRO-BIORETENTION 340 SCALE: 1" = 20'

MBR-340
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 378 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 37,448 SF
STORAGE PROVIDED = 1,315 CU-FT (@480.50)
ESDv PROVIDED = 1,748 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 479.50
HIGH-FLOW OUTFALL: RS-171 (5' INLET, TOP = 480.50)
MINIMUM DAM ELEVATION = 481.00



MICRO-BIORETENTION 340 LANDSCAPE PLAN SCALE: 1" = 30'



NOTES:
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2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION

SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

MICRO-BIORETENTION 340 DETAILS

GLW PLANNING | ENGINEERING | SURVEYING
3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:	DATE	REVISION	BY	APP'R.
JRD				
DRAWN BY: JRD				
CHECKED BY: DEV				

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975, EXPIRATION DATE: MAY 26, 2020
STATE OF MARYLAND — CARLTON KENNETH GUNDERSON — NO. 12975 — PROFESSIONAL ENGINEER
1/2/19

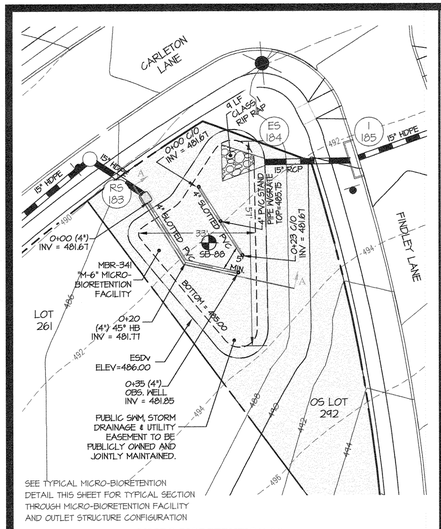
STORMWATER MANAGEMENT DETAILS

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	63 OF 72

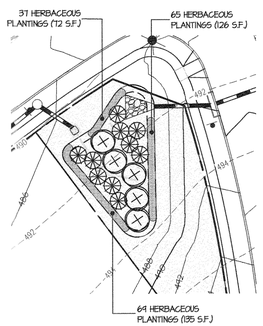
F 17-001



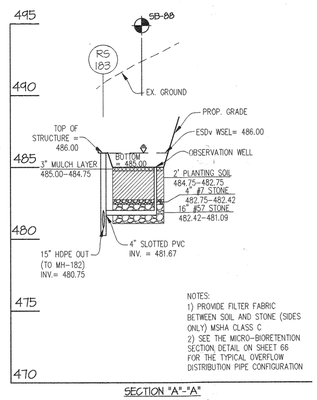
MICRO-BIORETENTION 341 SCALE: 1" = 20'

MBR-341
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 378 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 18,019 SF
STORAGE PROVIDED = 1,360 CU-FT (@486.00)
ESDv PROVIDED = 1,808 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY =485.00
HIGH-FLOW OUTFALL: RS-183 (5' INLET, TOP = 486.00)
MINIMUM DAM ELEVATION = 486.33



MICRO-BIORETENTION 341 LANDSCAPE PLAN SCALE: 1" = 30'



NOTES:
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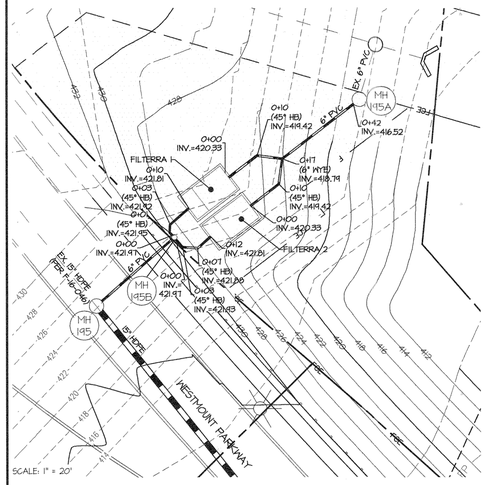
2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION

SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

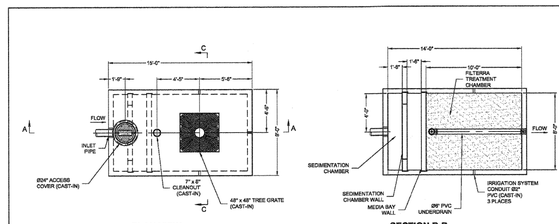
MICRO-BIORETENTION 341 DETAILS



SCALE: 1" = 20'

ESDV SUMMARY

FACILITY	UNIT DESIGNATION	INSIDE VAULT DIMENSIONS	DRAINAGE AREA	IMPERVIOUS (%)	Pe PROVIDED	ESDv MIN. (Pe=1.00")	ESDv PROVIDED
FILTERRA 1	FTSC 10' x 8'	14' x 8'	17,208 SF	56%	1.00 IN	199 CF	267 CF
FILTERRA 2	FTSC 10' x 8'	14' x 8'	17,208 SF	56%	1.00 IN	199 CF	267 CF



MATERIALS LIST

COUNT	DESCRIPTION	INSTALLED BY
1	PLANT, SEE GENERAL NOTE 6	CONTECH
0.74 CY	MULCH, SEE GENERAL NOTE 6	CONTECH
1	ENERGY DISSIPATION ROCK LAYER	CONTECH
5.19 CY	STANDARD FILTERRA MEDIA	CONTECH
2.96 CY	1/2" #6 ROUND AGGREGATE UNDERDRAIN STONE	CONTECH
1	FILTERRA FLOWRIT 810A-5.04 CUSTOM	CONTECH
1	48" x 48" TREE GRATE FRAME (CAST-IN), GALV.	CONTECH
1	48" x 48" TREE GRATE WITH 12" OPENING (T)	CONTECH
1	8"Ø" x 8" CLEANOUT (F) (CAST-IN)	CONTECH
1	8"Ø" X 4" ACCESS FRAME & COVER EJIW #4142Z0020	CONTECH
3	8"Ø" PVC IRRIGATION CONDUIT	CONTECH
1	SEALANT FOR JOINTS	CONTRACTOR

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE
2. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND REINFORCEMENT, CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE OR VISIT OUR WEBSITE
3. FILTERRA WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING
4. STRUCTURE SHALL MEET PEDESTRIAN LIVE LOAD WITH NO-8 WHEEL LOAD MOUNTING THE CURB AND ADJACENT HS-20 LIVE LOAD SURCHARGE ON THE WALLS OF THE STRUCTURE, ASSUMING EARTH COVER OF 0' AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE RATED FOR H-20 TRAFFIC LOADING
5. FILTERRA STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-857, ASTM C-478 AND ASTM 318 LOAD FACTOR DESIGN METHOD
6. PLANT, MULCH AND DISSIPATION ROCKS SUPPLIED BY CONTECH AND DELIVERED AT TIME OF SYSTEM ACTIVATION. PLANT SELECTION SHALL BE DONE BY THE ENGINEER OF RECORD IN ACCORDANCE WITH THIS PRODUCT PLANS AND SPECIFICATIONS.
7. ENGINEERED MEDIA, STONE AND UNDERDRAIN SHIPPED SEPARATELY FROM VAULT.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD
B. CONTRACTOR TO PROVIDE EQUIPMENT* WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE FILTERRA STRUCTURE (LIFTING CLUTCHER RECOMMENDED) AND MEDIA BAY WITH SUFFICIENT CAPACITY AS REQUIRED FOR SAFETY AND REDUCTION OF DAMAGE TO CONCRETE STRUCTURE
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ANNULAR S.TRUCTURE
D. CONTRACTOR TO SUPPLY AND INSTALL INLET PROTECTION BAR IF REQUIRED BY LOCAL JURISDICTION.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT FILTERRA MEDIA BAY FROM CONSTRUCTION RUNOFF DURING CONSTRUCTION
F. CONTECH IS RESPONSIBLE FOR ACTIVATION OF THE SYSTEM WHICH INCLUDES PLANTING OF THE SPECIFIED PLANT, MULCH INSTALLATION, AND PLACING OF DISSIPATION ROCK. ACTIVATION ONLY OCCURS WHEN THE SITE IS FULLY STABILIZED WITH FINAL PAVEMENT INSTALLED AND SWEPT CLEAN OF CONSTRUCTION SEDIMENT.
G. ALL FILTERRA UNITS MUST BE WATERED BY IRRIGATION LINES OR SPRINKLER SYSTEMS ON A REGULAR BASIS. FILTERRA UNITS MAY BE EQUIPPED WITH IRRIGATION HOSES FOR NEW OR EXISTING IRRIGATION LINES UPON REQUEST

STRUCTURE WEIGHT
APPROXIMATE WEIGHT
APPROXIMATE HEAVIEST PICK = TBD LBS ⚠
STRUCTURE IS DELIVERED IN 2 PIECES

MAX FOOTPRINT = 9' x 21'

CONTECH PROPOSAL DRAWING

OPINAV LAYOUT 8 FTSC1080#INCD

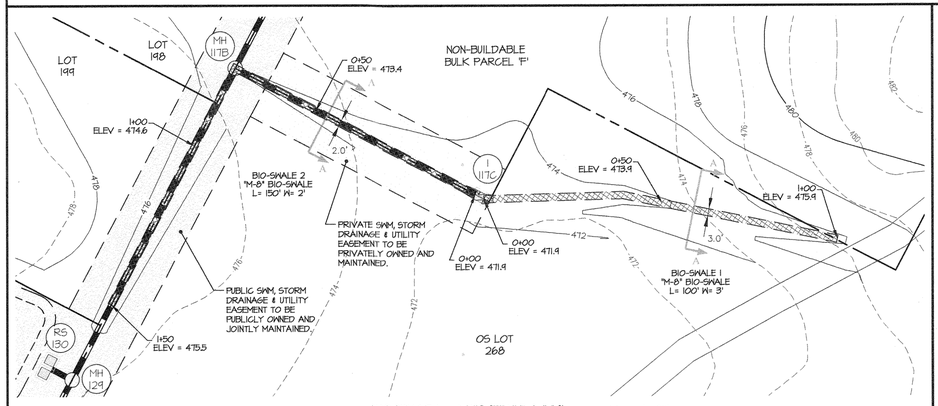
CONTECH ENGINEERED SOLUTIONS LLC
9025 Centre Pointe Drive, Suite 400, West Chester, OH 45069
800.338.1122 www.conteches.com
Filterra® BioRetention System

DATE	4/8/19
DESIGNED	BAS
DRAWN	DWB/BAS
APPROVED	
CONTECH PROJECT NO.	68524
SHEET	1 OF 1

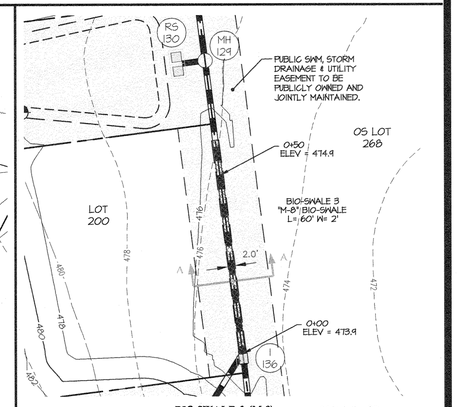
FTSC1080I, 68524-1-10
WESTMONT - PHASE 3
ELLICOTT CITY, MD
for SYSTEM: FT #1

NO.	DATE	REVISION DESCRIPTION
1	02/19	INTERNAL WALL HEIGHTS

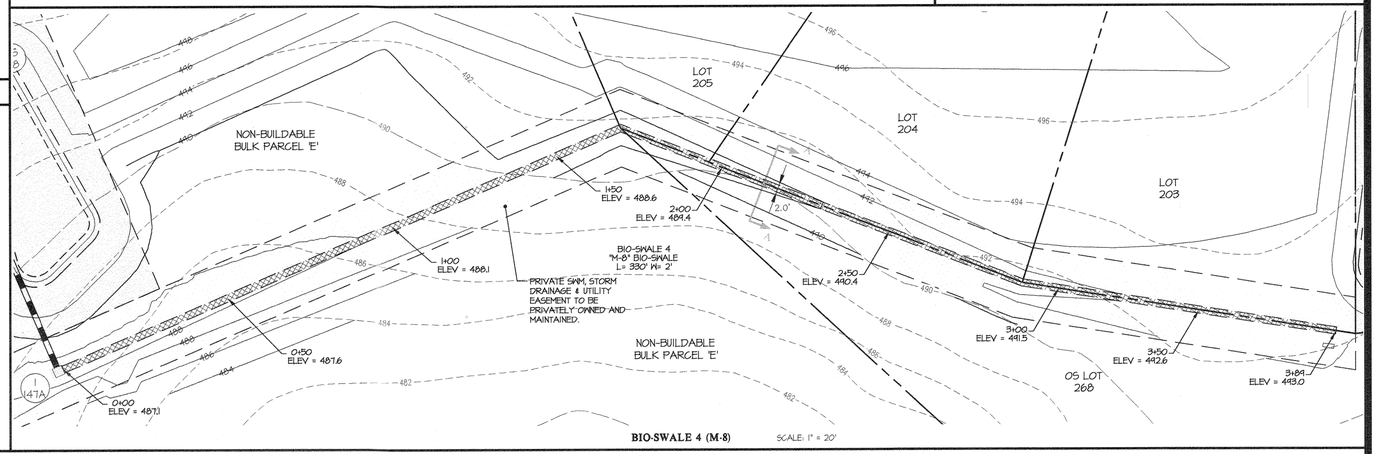
FILTERRA DETAILS



BIO-SWALE 1 and BIO-SWALE 2 (M-8) SCALE: 1" = 20'



BIO-SWALE 3 (M-8) SCALE: 1" = 20'



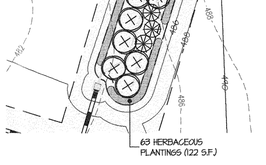
BIO-SWALE 4 (M-8) SCALE: 1" = 20'

BIO-SWALE (M-8) DETAILS

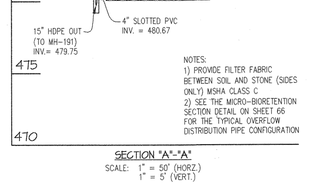
MICRO-BIORETENTION 342 SCALE: 1" = 20'

MBR-342
TYPE (PER MDE): MICRO BIORETENTION SYSTEM (M6)
NON - MDE 378 FACILITY
TOTAL DRAINAGE AREA TO FACILITY = 28,610 SF
STORAGE PROVIDED = 1,504 CU-FT (@485.00)
ESDv PROVIDED = 2,000 CU-FT

LOW-FLOW OUTFALL: PERFORATED 4" UNDERDRAIN SYSTEM
BOTTOM OF FACILITY = 484.00
HIGH-FLOW OUTFALL: RS-192 (5' INLET, TOP = 485.00)
MINIMUM DAM ELEVATION = 485.33



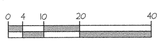
MICRO-BIORETENTION 342 LANDSCAPE PLAN SCALE: 1" = 30'



NOTES:
1) PROVIDE FILTER FABRIC BETWEEN SOIL AND STONE (SIDES ONLY) MSHA CLASS C
2) SEE THE MICRO-BIORETENTION SECTION DETAIL ON SHEET 66 FOR THE TYPICAL OVERFLOW DISTRIBUTION PIPE CONFIGURATION

SECTION "A"-"A"
SCALE: 1" = 50' (HORZ.)
1" = 5' (VERT.)

MICRO-BIORETENTION 342 DETAILS

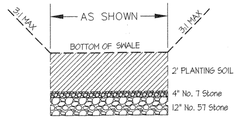


NOTE:
FOR TOTAL PIPE LENGTH WITHIN STORMWATER MANAGEMENT DEVICES, SEE SHEET 56.

* SEE SHEET 13 FOR SHRUB AND HERBACEOUS PLANTING DETAILS

MICRO-BIORETENTION PLANT LIST (for this sheet)

SYMBOL	QTY.	NAMES (BOTANICAL / SCIENTIFIC)	SIZE	ROOT/COMMENTS
SHRUBS *				
	13	CORNUS SERICEA 'RUBY'/ RUBY RED OSIER DOGWOOD	18"-24" SPR.	CONTAINER
	19	ITEA VIRGINICA HENRY'S GARNET/ VIRGINIA SWEETSPIRE	18"-24" SPR.	CONTAINER
HERBACEOUS *				
	383	PROVIDE AN EVEN MIX OF THE FOLLOWING PLANTS IN EACH MICRO-BIO: -HEMEROCALLIS 'STRAWBERRY CANDY' DAYLILY -HEMEROCALLIS 'JOAN SENIOR' DAYLILY -KALMIA ANGUSTIFOLIA/SHEEP LAUREL -ELEOCHARIS OVATA OBTUSA/BLUNT SPIKE RUSH	18" O.C.	CONTAINER



BIO-SWALE CROSS SECTION A-A
SCALE: NTS

NOTE:
1) PROVIDE LINER ON THE SIDES ONLY

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6.27.19

Chief, Development Engineering Division — Date 6.24.19

GLW
PLANNING | ENGINEERING | SURVEYING
3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:	JRD
DRAWN BY:	JRD
CHECKED BY:	DEV

DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMONT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975
EXPIRATION DATE: MAY 26, 2020

STATE OF MARYLAND — JAMES KENNETH GUNDERSEN — NO. 12975 — PROFESSIONAL ENGINEER

1/2/19

STORMWATER MANAGEMENT DETAILS

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	64 OF 92

F 17-001

ESD COMPUTATION SUMMARY

DRAINAGE AREA NO.	DRAINAGE AREA (AC.)	IMPERVIOUS AREA (AC.)	PERVIOUS AREA (AC.)	ESDv REQUIRED (C.F.)	ESDv PROVIDED (C.F.)	Pe REQUIRED (IN.)	Pe PROVIDED (IN.)	PUBLIC/PRIVATE/JOINT OWNERSHIP	PUBLIC/PRIVATE/JOINT MAINTENANCE
MBR 301	0.92	0.41	0.51	2701.33	3085.95	1.80"	2.06"	PUBLIC	JOINT
MBR 302	0.64	0.36	0.28	2318.24	2232.00	1.80"	1.73"	PUBLIC	JOINT
MBR 303	0.68	0.34	0.34	2210.74	2401.74	1.80"	1.96"	PUBLIC	JOINT
MBR 304	0.81	0.36	0.45	2368.46	3416.48	1.80"	2.60"	PUBLIC	JOINT
MBR 305	0.59	0.32	0.27	2074.52	1452.00	1.80"	1.26"	PUBLIC	JOINT
MBR 306	0.39	0.18	0.21	1221.37	1747.00	1.80"	2.57"	PUBLIC	JOINT
MBR 307	0.66	0.36	0.30	2325.73	3083.74	1.80"	2.39"	PUBLIC	JOINT
MBR 308	0.69	0.26	0.43	1755.51	1886.48	1.80"	1.93"	PUBLIC	JOINT
MBR 309	0.65	0.32	0.33	2109.28	1648.74	1.80"	1.41"	PUBLIC	JOINT
MBR 311	0.84	0.28	0.56	1925.33	2212.69	1.80"	2.07"	PUBLIC	JOINT
MBR 312	0.85	0.41	0.44	2670.68	2005.48	1.80"	1.35"	PUBLIC	JOINT
MBR 313	0.44	0.21	0.23	1405.29	1678.00	1.80"	2.15"	PUBLIC	JOINT
MBR 314	0.73	0.41	0.32	2630.62	2274.00	1.80"	1.56"	PUBLIC	JOINT
MBR 315	0.69	0.36	0.33	2369.11	2165.00	1.80"	1.64"	PUBLIC	JOINT
MBR 316	0.66	0.32	0.34	2070.89	1489.00	1.80"	1.29"	PUBLIC	JOINT
MBR 317	0.59	0.20	0.39	1353.02	1944.00	1.80"	2.59"	PUBLIC	JOINT
MBR 318	0.72	0.28	0.44	1862.52	2220.48	1.80"	2.15"	PUBLIC	JOINT
MBR 319	0.43	0.22	0.21	1445.39	1933.00	1.80"	2.41"	PUBLIC	JOINT
MBR 320	0.55	0.18	0.37	1249.10	1782.17	1.80"	2.57"	PUBLIC	JOINT
MBR 321	0.83	0.13	0.70	1039.99	1312.69	1.80"	2.27"	PRIVATE	PRIVATE
MBR 322	0.89	0.39	0.50	2565.87	3265.21	1.80"	2.29"	PUBLIC	JOINT
MBR 323	0.91	0.35	0.56	2355.08	2679.48	1.80"	2.05"	PUBLIC	JOINT
MBR 324	0.63	0.27	0.36	1813.58	2240.12	1.80"	2.22"	PUBLIC	JOINT
MBR 325	0.59	0.29	0.30	1896.77	1879.00	1.80"	1.78"	PUBLIC	JOINT
MBR 326	1.02	0.26	0.76	1865.78	2201.00	1.80"	2.12"	PUBLIC	JOINT
MBR 327	0.50	0.20	0.30	1358.15	1835.00	1.80"	2.43"	PUBLIC	JOINT
MBR 328	0.66	0.32	0.34	2093.78	2839.00	1.80"	2.44"	PUBLIC	JOINT
MBR 329	0.65	0.31	0.34	2045.92	2053.00	1.80"	1.81"	PUBLIC	JOINT
MBR 330	0.62	0.24	0.38	1603.32	2132.48	1.80"	2.39"	PUBLIC	JOINT
MBR 331	0.87	0.36	0.51	2414.74	1371.21	1.80"	1.02"	PUBLIC	JOINT
MBR 332	0.78	0.30	0.48	2025.28	2557.95	1.80"	2.27"	PUBLIC	JOINT
MBR 333	1.02	0.57	0.45	3673.34	2133.00	1.80"	1.05"	PUBLIC	JOINT
MBR 334	1.04	0.42	0.62	2833.17	2909.95	1.80"	1.85"	PUBLIC	JOINT
MBR 335	0.51	0.24	0.27	1613.88	2062.50	1.80"	2.30"	PUBLIC	JOINT
MBR 336	0.69	0.09	0.60	755.65	1077.00	1.80"	2.57"	PRIVATE	PRIVATE
MBR 337	0.43	0.19	0.24	1227.82	1776.00	1.80"	2.60"	PUBLIC	JOINT
MBR 338	0.37	0.06	0.31	473.12	684.00	1.80"	2.60"	PRIVATE	PRIVATE
MBR 339	0.85	0.49	0.36	3178.63	2814.00	1.80"	1.59"	PUBLIC	JOINT
MBR 340	0.86	0.32	0.54	2151.71	3104.79	1.80"	2.60"	PUBLIC	JOINT
MBR 341	0.41	0.20	0.21	1351.36	1947.00	1.80"	2.59"	PUBLIC	JOINT
MBR 342	0.66	0.27	0.39	1768.36	2556.00	1.80"	2.60"	PUBLIC	JOINT
Fut. MBR 427	0.92	0.46	0.46	3023.38	1831.00	1.80"	1.09"	PUBLIC	JOINT
FILTERRA-1	0.40	0.22	0.18	199	199	1.80"	1.00"	PRIVATE	JOINT
FILTERRA-2	0.40	0.22	0.18	199	199	1.80"	1.00"	PRIVATE	JOINT
DA 301	0.35	0.10	0.25	702.89	485.05	1.80"	1.24"	---	---
DA 302	0.12	0.03	0.09	186.08	240.95	1.80"	2.33"	---	---
DA 303	0.64	0.13	0.51	946.73	965.84	1.80"	1.84"	---	---
DA 304	0.57	0.16	0.41	1129.92	796.64	1.80"	1.27"	---	---
DA 305	0.16	0.05	0.11	347.09	422.52	1.80"	2.19"	---	---
DA 306	0.14	0.05	0.09	341.35	386.10	1.80"	2.04"	---	---
DA 307	0.16	0.05	0.11	348.37	361.16	1.80"	1.87"	---	---
DA 308	0.29	0.08	0.21	536.39	633.78	1.80"	2.13"	---	---
DA 309	0.16	0.05	0.11	348.85	339.94	1.80"	1.75"	---	---
DA 310	0.11	0.02	0.09	183.91	106.95	1.80"	1.05"	---	---
DA 311	0.56	0.22	0.34	1489.90	1830.88	1.80"	2.21"	---	---
DA 312	0.08	0.02	0.06	175.19	245.24	1.80"	2.52"	---	---
DA 313	0.22	0.05	0.17	368.23	331.48	1.80"	1.62"	---	---
DA 314	0.50	0.13	0.37	900.48	1294.55	1.80"	2.59"	---	---
DA 315	0.26	0.08	0.18	526.76	698.69	1.80"	2.39"	---	---
DA 316	0.93	0.27	0.66	1875.74	1044.70	1.80"	1.00"	---	---
DA 317	1.35	0.47	0.88	3200.14	1866.67	1.80"	1.05"	---	---

TOTAL FOR SITE (MBR, F, DA)	36.64 AC.	14.91 AC.	21.73 AC.	97,201.81 CF	102,373.47 CF	1.80"	1.85"

ON LOT STORMWATER MANAGEMENT PRACTICES

LOT NUMBER	ADDRESS	SHEETFLOW TO CONSERVATION AREAS N-3 (Y/N)	RAINWATER HARVESTING M-1 (NUMBER)	DRY WELLS M-5 (NUMBER)
174	THREE GRACES ROAD	Y	2	0
175	THREE GRACES ROAD	Y	2	0
176	THREE GRACES ROAD	Y	2	0
177	THREE GRACES ROAD	Y	2	1
178	THREE GRACES ROAD	Y	1	2
179	THREE GRACES ROAD	Y	2	0
180	THREE GRACES ROAD	Y	1	1
181	THREE GRACES ROAD	Y	1	2
182	THREE GRACES ROAD	Y	1	2
183	THREE GRACES ROAD	N	1	2
184	THREE GRACES ROAD	N	2	1
185	THREE GRACES ROAD	N	2	1
186	THREE GRACES ROAD	N	2	0
187	THREE GRACES ROAD	N	2	0
188	THREE GRACES ROAD	N	1	1
189	THREE GRACES ROAD	N	1	2
190	THREE GRACES ROAD	N	1	2
191	THREE GRACES ROAD	N	1	2
192	THREE GRACES ROAD	N	1	2
193	THREE GRACES ROAD	N	1	2
194	THREE GRACES ROAD	N	1	2
195	THREE GRACES ROAD	N	1	2
196	CAREY COURT	N	2	1
197	CAREY COURT	N	2	0
198	DUDLEY LANE	N	1	2
199	DUDLEY LANE	N	1	2
200	DUDLEY LANE	N	1	2
201	DUDLEY LANE	N	1	2
202	DUDLEY LANE	N	1	2
203	DUDLEY LANE	N	1	2
204	DUDLEY LANE	N	1	2
205	DUDLEY LANE	N	1	2
206	WESTMOUNT PARKWAY	N	1	2
207	WESTMOUNT PARKWAY	Y	1	2
208	WESTMOUNT PARKWAY	Y	1	2
209	WESTMOUNT PARKWAY	Y	1	1
210	WESTMOUNT PARKWAY	Y	1	1
211	WESTMOUNT PARKWAY	Y	1	2
212	WESTMOUNT PARKWAY	N	1	2
213	WESTMOUNT PARKWAY	Y	1	1
214	WESTMOUNT PARKWAY	Y	1	1
215	WESTMOUNT PARKWAY	Y	1	1
216	WESTMOUNT PARKWAY	Y	1	1
217	WESTMOUNT PARKWAY	Y	1	0
218	WESTMOUNT PARKWAY	N	4	0
219	THREE GRACES ROAD	N	1	2
220	THREE GRACES ROAD	N	1	2
221	THREE GRACES ROAD	N	1	2
222	THREE GRACES ROAD	N	1	2
223	THREE GRACES ROAD	N	1	2
224	WALPOLE WAY	N	1	2
225	WALPOLE WAY	N	1	2
226	WALPOLE WAY	N	1	2
227	WALPOLE WAY	N	1	2
228	WALPOLE WAY	N	1	2
229	WALPOLE WAY	N	1	2
230	WALPOLE WAY	N	1	2
231	WALPOLE WAY	N	1	2
232	WALPOLE WAY	N	1	2
233	THREE GRACES ROAD	N	1	2
234	THREE GRACES ROAD	N	1	2
235	THREE GRACES ROAD	N	2	1
236	THREE GRACES ROAD	N	2	1
237	WESTMOUNT PARKWAY	N	1	2
238	WESTMOUNT PARKWAY	N	1	2
239	WESTMOUNT PARKWAY	N	1	2
240	WESTMOUNT PARKWAY	N	1	1
241	CAREY COURT	N	1	2
242	CAREY COURT	N	1	2
243	CARLETON LANE	N	1	2
244	CARLETON LANE	N	1	2
245	CARLETON LANE	N	1	2
246	CARLETON LANE	N	1	2
247	CARLETON LANE	N	1	2
248	CARLETON LANE	N	1	2
249	CARLETON LANE	N	1	2
250	CARLETON LANE	N	1	2
251	CARLETON LANE	N	1	2
252	WESTMOUNT PARKWAY	N	1	2
253	WESTMOUNT PARKWAY	N	1	2
254	WESTMOUNT PARKWAY	N	1	2
255	WESTMOUNT PARKWAY	N	1	2
256	WESTMOUNT PARKWAY	N	1	2
257	WESTMOUNT PARKWAY	N	1	2
258	WESTMOUNT PARKWAY	N	1	2
259	WESTMOUNT PARKWAY	N	1	2
260	WESTMOUNT PARKWAY	N	1	2
261	CARLETON LANE	N	1	2
262	FINDLEY LANE	N	1	2
263	FINDLEY LANE	N	1	2
264	FINDLEY LANE	N	1	2
265	CARLETON LANE	N	1	2
266	CARLETON LANE	N	1	2

NOTES:
1. ALL ON LOT STORMWATER MANAGEMENT DEVICES WILL BE PRIVATE AND OWNED/MAINTAINED BY THE HOMEOWNER.
2. PRIVATE STORMWATER MANAGEMENT DEVICES FOR EACH LOT SUBJECT TO A DOC.

NARRATIVE

INTRODUCTION

THIS REPORT SUMMARIZES THE STORMWATER MANAGEMENT DESIGN FOR THE PHASE 3 SITE OF WESTMOUNT. IT INCLUDES STORMWATER MANAGEMENT PRACTICES, JUSTIFIES WHY THOSE PRACTICES ARE USED, AND THE COMPUTATIONS THAT SUPPORT THEM. THE REPORT REVIEWS EXISTING AND PROPOSED SITE CONDITIONS, WHILE INDICATING ANY IMPACTS OR AFFECTS THAT THE LATTER MAY HAVE ON THE FORMER, OR HOW THOSE POSSIBLE IMPACTS ARE BEING CONTROLLED.

SITE DESCRIPTION

WESTMOUNT IS LOCATED IN THE SECOND ELECTION DISTRICT OF HOWARD COUNTY. IT IS BOUNDED BY FREDERICK ROAD (MD ROUTE 144A) TO THE NORTH, THE KIWANIS-WALLACE PARK AND NEIGHBORHOODS SUCH AS CHATEAU RIDGE AND CENTENNIAL MANOR ARE TO THE EAST, AND THE DOUGHOREGAN MANOR IS TO THE WEST. KINGSBRIDGE AT BURLEIGH MANOR IS ADJACENT TO A PORTION OF THE SOUTH BOUNDARY OF THE SITE. IT SHOULD BE MENTIONED THAT THE REMAINING PROPERTY ADJACENT TO OUR SITE TO THE SOUTH AND ALL OF THE AREA TO THE WEST HAS BEEN PLACED IN AGRICULTURAL PRESERVATION PARCELS AND CAN NEVER BE DEVELOPED. THE OWNER OF THIS PROPERTY BEING DEVELOPED ALSO HAS CONTROL OF THE PRESERVATION PARCELS TO THE WEST. THE LIMIT OF PHASE THREE IS LOCATED IN THE SOUTHERN SITE OF WESTMOUNT. IT IS BOUNDED BY A STREAM AT THE NORTH (NEAR THE END OF WESTMOUNT PARKWAY IN PHASE TWO), RESIDENTIAL NEIGHBORHOODS TO THE SOUTH AND EAST, WITH THE AGRICULTURAL PRESERVATION TO THE WEST.

THE ZONING FOR THIS PROPERTY IS R-ED AND THE PHASE THREE LIMIT IS APPROXIMATELY 41 ACRES. ACCESS TO THE SITE WILL BE FROM WESTMOUNT PARKWAY PROPOSED IN PHASE TWO, WHICH IS A CONTINUATION FROM THE WESTMOUNT PARKWAY IN PHASE ONE THAT INTERSECTS MD ROUTE 144A. THE MAIN ROAD (WESTMOUNT PARKWAY) HAS BEEN DESIGNED WITH THE INPUT OF FIRE AND RESCUE. OUR CLIENT ACKNOWLEDGED EARLY ON IN THE PROCESS THAT SERVING THIS MANY LOTS WITH ONLY ONE WAY IN AND OUT WOULD GIVE FIRE AND RESCUE CONCERN. THE SOLUTION WAS THE ROAD ALIGNMENT SHOWN, WITH LARGE SWEEPING RADII AND PERIODIC BREAKS IN THE ISLANDS FOR THE FIRE TRUCK TO GET TO THE OTHER SIDE IF THE NEED SHOULD ARISE.

THE SITE IS WOODED IN THE AREAS OF CONCENTRATED FLOWS, AND MEADOW IN THE AREAS OF HIGHER ELEVATION. THE EXISTING TOPOGRAPHY ON THE SITE IS MODERATELY SLOPED DRAINING PREDOMINATELY FROM THE NORTHWEST CORNER OF THE SITE TO THE SOUTHEAST. THE SITE DRAINS TO SEVERAL AREAS OF CONCENTRATED FLOWS, MAKING UP THE THREE MAJOR TRIBUTARIES ANALYZED IN OUR FLOODPLAIN STUDY. THE COMPUTATIONS FOR THE FLOODPLAIN STUDY HAVE BEEN PROVIDED IN A SEPARATE REPORT. THESE AREAS EVENTUALLY DRAIN TO THE LITTLE PATUXENT RIVER. THE SITE LIES WITHIN THE LITTLE PATUXENT WATERSHED. THE LITTLE PATUXENT RIVER IS A TYPE IV-P STREAM.

IN ADDITION TO THE FLOODPLAIN, THE SITE CONTAINS STEEP SLOPES, WETLANDS, AND STREAMS. ANY DISTURBANCES OF THESE AREAS HAVE BEEN DETERMINED AS NECESSARY BY THE DEPARTMENT OF PLANNING AND ZONING IN REVIEW OF THE PRELIMINARY EQUIVALENT SKETCH PLAN.

THE SITE IS SUBJECT TO A DEVELOPER'S RIGHTS AND RESPOSIBILITES AGREEMENT WHICH IDENTIFIES THE DEVELOPMENT CRITERIA FOR THE PROJECT.

STORM DRAIN

STORM DRAIN INLETS ARE USED TO COLLECT RUNOFF FROM THE ROAD AND LOT DRAINAGE. THE STORM DRAIN WILL TAKE THE RUNOFF TO A MICRO-BIORETENTION FACILITY. THE RUNOFF THAT DOES NOT INFILTRATE AT THE MIRCO-BIORETENTION FACILITY, WILL BE COLLECTED BY THE UNDER DRAIN OR OVERFLOW RISER AND ENTER A STORM DRAIN SYSTEM THAT WILL OUTFALL THE RUNOFF TO OPEN SPACE. OTHER WATER WILL ENTER THE STORM DRAIN SYSTEM BY OVERLAND FLOW TO A MICRO-BIORETENTION FACILITY, EITHER AS SHEET FLOW OR BY A SWALE.

'C' FACTORS FOR THE STORM DRAIN DRAINAGE AREAS WERE ESTABLISHED BASED ON TWO TYPICAL CONDITIONS FOUND THROUGHOUT THE SITE: 1) DRAINAGE AREA CONSISTS PRIMARILY OF OPEN SPACE (C=0.34) 2) DRAINAGE AREA CONSISTS PRIMARILY OF RESIDENTIAL LOTS (C=0.67). BECAUSE THE TYPICAL SECTION FOR WESTMOUNT PARKWAY VARIES AT THE BRIDGE CROSSING, THE 'C' FACTORS ALONG THIS SECTION OF ROAD WERE CALCULATED INDEPENDENTLY.

WE BELIEVE THAT THE MANNER IN WHICH WE WILL OUTFALL THE RUNOFF, ALONG WITH THE SEDIMENT CONTROL MEASURES TAKEN DURING CONSTRUCTION, THE NATURAL VEGETATION AND ECO-SYSTEM THAT EXISTS TODAY WILL NOT BE ADVERSELY IMPACTED AND WILL CONTINUE TO THRIVE. ALSO, BECAUSE THE STORM DRAIN SYSTEM OUTFALLS TO OPEN SPACE, IT DOES NOT AFFECT ANY EXISTING STORM DRAIN UTILITIES.

STREAM CROSSING

DUE TO THE CONSTRUCTION OF WESTMOUNT PARKWAY OVER THE EXISTING STREAM 'A' (AS IDENTIFIED IN THE FLOODPLAIN STUDY), AN ARCH SPAN WILL BE CONSTRUCTED AT THAT CROSSING. A STREAM REPORT AS WELL AS SCOUR ANALYSIS AT THE ARCH SPAN HAS BEEN PROVIDED WITH THESE COMPUTATIONS.

WATER AND SEWER

PROPOSED STORMWATER MANAGEMENT FACILITIES HAVE BEEN LOCATED IN SUCH A WAY SO THAT SEWER OUTFALLS AND WATER MAINS CONNECTING MULTIPLE PHASES DO NOT RUN ALONG COMMON PROPERTY LINES. THIS ALLOWS FOR BOTH THE INITIAL CONSTRUCTION AND FUTURE MAINTENANCE OF THE PUBLIC SYSTEMS.

SEDIMENT CONTROL

SEDIMENT CONTROL FOR THE SITE WILL CONSIST OF PERIMETER EARTH DIKES TO DIRECT THE RUNOFF TO SEDIMENT TRAPS, STONE OUTLET STRUCTURES, AND GABION OUTLET STRUCTURES. SILT FENCE OR SUPER SILT FENCE WILL BE UTILIZED IN AREAS THAT ARE CLOSE IN PROXIMITY AND THE DRAINAGE AREA TO THE DEVICE IS APPROPRIATE. THE LOCATION OF PERMANENT STORMWATER MANANGEMENT WAS TAKEN INTO CONSIDERATION DURING THE DESIGN OF SEDIMENT CONTROL. WE HAVE ALSO PROVIDED STOCKPILE AREAS FOR THE EXCESS MATERIAL THAT WILL BE GENERATED BY THE LOT AREAS AND USED IN AREAS SUCH AS ROAD CROSSINGS. THE SITE DOES BALANCE WITHIN ITSELF; THEREFORE, AN OFFSITE AREA FOR EXCESS OR BORROW MATERIAL WILL NOT BE REQUIRED.

STORMWATER MANAGEMENT

STORMWATER MANAGEMENT FOR THIS SITE WILL BE PROVIDED IN ACCORDANCE WITH CHAPTER 5 OF THE RECENTLY REVISED MDE STORMWATER MANAGEMENT DESIGN MANUAL. BASED ON TABLE 5.3, THIS SITE HAS A TARGET PE OF 1.8". THE METHODOLOGY APPLIED IN OUR DESIGN AND THE FACILITIES BEING USED TO SATISFY OUR ESD VOLUMES FOLLOW THE HIERARCHY OF THE DESIGN MANUAL GUIDELINES AS THE PREFERRED MEANS OF PROVIDING ESD TO THE BMP. IN ORDER TO FULFILL THE STORMWATER MANAGEMENT REQUIREMENTS, A COMBINATION OF RAINWATER HARVESTING, SHEET FLOW TO CONSERVATION AREAS, DRY WELLS, MICRO-BIORETENTION FACILITIES, BIO-SWALES, AND FILTERRAS WILL BE USED.

ALTHOUGH THE PERCENT IMPERVIOUS FOR THE AREA WITHIN OUR LIMIT OF DISTURBANCE IS 40%, THE TARGET PE VALUES WERE DETERMINED BASED ON A CONSERVATIVE SITE IMPERVIOUSNESS OF 50%. THIS SITE HAS MANY GREEN AREAS WITHIN IT, WHICH BRINGS THE COMPOSITE PERCENT IMPERVIOUS AREA DOWN, BUT EACH FACILITY HAS BEEN DESIGNED ON A CASE BY CASE BASIS AND THE PERCENTS OF IMPERVIOUS AREA WILL VARY. THE EXISTING SITE CONDITION CONSISTED OF NO IMPERVIOUS AREA.

DEPENDING ON THE LOT CONFIGURATION, THE ROOFTOP DRAINAGE WILL BE TREATED BY A COMBINATION OF RAINWATER HARVESTING, SWALES, AND DRY WELLS. FOR LOTS THAT BACK TO OPEN SPACE, THE BACK HALF OF THE ROOF WILL BE TREATED BY DRY WELLS AND RAINWATER HARVESTING. THE DRY WELLS WERE DESIGNED TO PROVIDE THE FULL ESD VOLUME FOR THE ROOF. THE NUMBER OF DRY WELLS BEING PROPOSED AND THE USE OF MICRO-BIORETENTION FACILITIES WILL GENERATE THE Rev REQUIRED FOR THE SITE. THE RAINWATER HARVESTING WILL BE FULFILLED BY 200 GALLON RAIN BARRELS TO ASSIST IN TREATING THE RUNOFF FROM THE BACK HALF OF ROOFS. A BENEFIT OF USING MANY OF THE STORMWATER MANAGEMENT DEVICES IS THAT THEY REDUCE THE SURFACE AREA REQUIRED FOR THE MICRO-BIORETENTION FACILITIES, WHILE REQUIRING LITTLE SURFACE AREA THEMSELVES. THE FACT THAT THE LOTS ARE LARGE, THE SITE HAS WIDE ENVIRONMENTAL BUFFERS, AND THE HOUSES ON THE LOTS ARE SINGLE FAMILY DETACHED, WE ARE ABLE TO TAKE ADVANTAGE OF DEVICES SUCH AS SHEET FLOW TO BUFFER AND RAINWATER HARVESTING.

MICRO-BIORETENTION FACILITIES WILL BE LOCATED THROUGHOUT THE SITE ON OPEN SPACE LOTS. THESE FACILITIES WILL TREAT THE ROAD AREA AND ANY LOT AREA DRAINING TO THE FACILITY BY EITHER OVERLAND FLOW OR PIPING. ESD STORAGE IN MICRO-BIORETENTION FACILITIES IS PROVIDED IN THE 12" OF PONDING ABOVE THE FACILITY. ALL OF THE MICRO-BIORETENTION FACILITIES WILL HAVE AN UNDER DRAIN SYSTEM AND AN OVERFLOW INLET TO PASS LARGE STORMS. IF THE FACILITY CAN PROVIDE THE FULL PE AND IS ADJACENT TO AN OPEN SPACE LOT DRAINING AWAY FROM THE SITE, THE FACILITY WILL OUTFALL TO THE OPEN SPACE LOT.

DUE TO LIMITED SPACE AT THE LOW POINT OF WESTMOUNT PARKWAY NEAR THE ARCHSPAN, FILTERRA UNITS WILL BE USED FOR STORMWATER MANAGEMENT. INLETS AT THE LOW POINT WILL CAPTURE RUNOFF, THEN THE 1 INCH WILL BE DIVERTED TO THE FILTERRAS. ALTHOUGH THE FILTERRAS WILL BE TREATING PUBLIC ROAD RUNOFF, THEY WILL BE LOCATED OUTSIDE OF THE ROAD RIGHT-OF-WAY AND WILL BE PRIVATELY OWNED AND MAINTAINED.

THE ENVIRONMENTAL SITE DESIGN PRESENTED IN THIS REPORT UTILIZES VARIOUS TYPES OF FACILITIES, SWALES, ETC. TO CAPTURE THE RUNOFF IN A NUMBER OF LOCATIONS WITHIN A WATERSHED IN AN ATTEMPT TO RECHARGE THE GROUNDWATER IN SEVERAL LOCATIONS. WE BELIEVE THIS IS MUCH BETTER THAN RELYING ON ONE OR TWO LOCATIONS, MANY TIMES LOWER IN THE SITE'S WATERSHED, AND NOT BEING EFFECTIVE. THE PROPOSED APPROACH REDUCES THE FOOTPRINT REQUIRED FOR THE ABOVE GROUND FACILITY NEEDED TO PROVIDE THE WATER QUALITY, THEREBY PRESERVING THE EXISTING VEGETATION.

MOST MICRO-BIORETENTION FACILITIES WILL BE COUNTY OWNED AND JOINTLY MAINTAINED BY THE COUNTY AND THE HOMEOWNER'S ASSOCIATION (HOA). ANY MICRO-BIORETENTIONS SOLELY WITHIN THE WESTMOUNT PARKWAY RIGHT-OF-WAY WILL BE BOTH OWNED AND MAINTAINED BY THE COUNTY. ANY FACILITIES THAT PRIMARILY TREAT LOT RUNOFF WILL BE PRIVATELY OWNED AND MAINTAINED BY HOA. ALL ON LOT DEVICES WILL BE PRIVATELY OWNED AND MAINTAINED BY THE INDIVIDUAL HOME OWNERS.

STREAM CROSSINGS

AS PART OF THE CONSTRUCTION BEING PROPOSED IS ONE STREAM CROSSING. THE CROSSING WILL BE AN ARCH SPAN DESIGNED BY CONTECH. THE DRAINAGE AREA INFORMATION AND THE DISCHARGE FOR THE DESIGN OF THE CROSSING WAS TAKEN FROM THE FLOODPLAIN STUDY SUBMITTED AND APPROVED UNDER SP 14-008.

THE DESIGN OF THE ARCH SPAN DID NOT INCREASE THE FLOODPLAIN WATER SURFACE ELEVATION FROM THAT PRESENTED IN THE EARLIER FLOODPLAIN STUDY. THERE WAS AN INCREASE IN THE SIZE OF THE CROSSING OVER WHAT WAS SHOWN ON THE EARLIER FLOODPLAIN STUDY IN ORDER TO OFFSET SCOUR EFFECTS AT THE UPSTREAM END OF THE ARCH SPAN AND TO MINIMIZE IMPACTS TO THE STREAM.

A REVISED HEC-RAS HAS BEEN PROVIDED WITH THE FINAL ARCH SPAN DESIGN AS A PART OF THE GEOMETRIC INFORMATION. A SCOUR REPORT FOR THE ARCH SPAN HAS ALSO BEEN INCLUDED.

CONCLUSION

WE BELIEVE THAT BY PROVIDING THE NUMBER OF MICRO BIO-RETENTION FACILITIES AS WE HAVE, ALONG WITH THEIR LOCATIONS AND THE OTHER DEVICES BEING PROPOSED, WE HAVE CREATED A STRATEGY THAT ALLOWS FOR THE PROPOSED DEVELOPMENT WITHOUT ADVERSELY AFFECTING THE RECEIVING WATERS AND OTHER ENVIRONMENTALLY SENSITIVE AREAS.

THE DESIGN, FOR BOTH STORMWATER MANAGEMENT AND SEDIMENT CONTROL, PRESENTED IN THIS REPORT AND ON THE FINAL PLAN DOES NOT ADVERSELY IMPACT THE ADJACENT PROPERTIES BOTH DURING AND AFTER CONSTRUCTION.

THE DESIGN ALSO DOES NOT ADVERSELY IMPACT THE EXISTING UTILITIES IN THE AREA. THE PROPOSED WATER AND SEWER ARE CONSISTENT WITH THE MASTER PLAN.

THIS FINAL PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH THE LATEST HOWARD COUNTY STANDARDS. THE DESIGN PRESENTED WILL SERVE TO UPHOLD THE INTEGRITY OF THE WATERSHED.

THE FOLLOWING RESOURCES WERE USED IN THE DESIGN OF THESE PLANS:
" TR-55 - PREPARED BY: USDA SOIL CONSERVATION SERVICE;
" TR-20 - PREPARED BY: USDA SOIL CONSERVATION SERVICE;
" HOWARD COUNTY SWM DESIGN MANUAL VOLUMES 1-4;
" HEC-RAS V.4.1.0 - DEVELOPED BY: US ARMY CORPS OF ENGINEERS
" BENTLEY CULVERTMASTER;
" MARYLAND DEPARTMENT OF THE ENVIORNMENT: WATERWAY CONSTRUCTION GUIDELINES;
" 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL;

GENERAL PERFORMANCE STANDARDS FOR STORMWATER MANAGEMENT

STANDARD #1	THROUGH THE USE OF PERVIOUS CONCRETE IN THE DRIVEWAYS AND SIDEWALKS, DRYWELLS, AND MICRO BIORETENTION FACILITIES, WE HAVE REDUCED THE FOOTPRINT OF ABOVE GROUND FACILITIES.
STANDARD #2	THROUGH THE USE OF THE DEVICES MENTIONED IN NUMBER 1 ABOVE AND THE USE OF SHEET FLOW TO BUFFERS AND ROOFTOP DISCONNECTS, WE HAVE ADEQUATELY TREATED THE RUNOFF BEFORE IT ENTERS A JURISDICTIONAL WETLAND OR WATERS OF THE STATE OF MARYLAND.
STANDARD #3	WE BELIEVE THE LOCATIONS OF THE DEVICES AND THE TYPES OF DEVICES BEING USED PROVIDES THE ABILITY FOR THE GROUNDWATER TO BE RECHARGED AT PRE-DEVELOPMENT RATES.
STANDARD#4	MANAGEMENT HAS BEEN PROVIDED WITH THE USE OF PERVIOUS CONCRETE, DRYWELLS MICRO BIORETENTION FACILITIES, BIOSWALES, ROOFTOP DISCONNECTS AND SHEET FLOW TO BUFFER.
STANDARD #5	SINCE THE DEVICES PROPOSED HAVE BEEN SIZED TO CAPTURE THE REQUIRED VOLUME DRAINING TO IT, AND HAVE BEEN DESIGNED TO THE CRITERIA OUTLINED IN THE DESIGN MANUAL, THE FIRST ASPECT OF THIS STANDARD HAS BEEN SATISFIED. SECONDLY, WE WILL PROVIDE AT FINAL PLAN STAGE THE OPERATIONS AND MAINTENANCE SCHEDULE TO BE IMPLEMENTED TO INSURE THE DEVICES' LONGEVITY. THE FACT THAT THE SITE WILL BE MONITORED BY A HOWARD COUNTY INSPECTOR AS WELL AS THE GEOTECHNICAL ENGINEER WILL ALSO PROVIDE CONFIDENCE THAT THE FACILITIES WILL BE CONSTRUCTED PROPERLY.
STANDARD #6	NO DETERMINATION HAS BEEN MADE THAT ANY MORE THAN THE MANAGEMENT OF THE ONE YEAR STORM WILL BE REQUIRED. HOWEVER, IF HOWARD COUNTY SHOULD DECIDE THAT MANAGEMENT OF THE LARGER STORM EVENTS IS REQUIRED, OUR DESIGN WILL BE MODIFIED TO PROVIDE THE ADDITIONAL MANAGEMENT.
STANDARD #7	THE ENTIRE ONE YEAR VOLUME HAS BEEN ESTABLISHED FOR THE SITE. THEREFORE, NO ADDITIONAL MEASURES ARE REQUIRED TO PROVIDE CPV.
STANDARD #8	RUNOFF FROM THIS SITE DOES NOT DISCHARGE TO CRITICAL AREAS. THEREFORE, THIS STANDARD DOES NOT APPLY.
STANDARD #9	THE OPERATIONS AND MAINTENANCE SCHEDULES ARE PROVIDED WITH THESE PLANS. AGREEMENTS WILL BE PUT IN PLACE BETWEEN THE OWNER AND THE COUNTY TO ENSURE THE LONG TERM CARE OF THE FACILITIES AT THAT TIME.
STANDARD #10	THE FACT THAT EACH FACILITY HAS BEEN DESIGNED IN ACCORDANCE WITH THE MDE DESIGN MANUAL WOULD INDICATE THAT EACH FACILITY HAS AN ACCEPTABLE FORM OF PRE-TREATMENT.
STANDARD#11	THIS SITE DOES NOT QUALIFY FOR RE-DEVELOPMENT. THEREFORE, THIS STANDARD DOES NOT APPLY.
STANDARD #12	THIS PROJECT IS RESIDENTIAL AND DOES NOT REQUIRE AN NOI FOR THE NPDES GENERAL PERMIT. THEREFORE, THIS STANDARD DOES NOT APPLY.
STANDARD #13	THIS SITE DOES NOT MEET THE DEFINITION OF A SITE THAT HAS THE POTENTIAL FOR HIGHER POLLUTANT LOADS. THEREFORE, THIS STANDARD DOES NOT APPLY.
STANDARD #14	THIS SITE IS BEING REVIEWED BY HOWARD COUNTY. UPON RECEIPT OF THEIR APPROVAL, THE PLAN WILL BE IN COMPLIANCE WITH THE DESIGN REQUIREMENTS OF HOWARD COUNTY.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[signature] 1/29/2019
Chief, Bureau of Highways — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
[signature] 6-27-19
Chief, Division of Land Development — Date
[signature] 6-24-19
Chief, Development Engineering Division — Date

GLW
PLANNING | ENGINEERING | SURVEYING
3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY: JRD
DRAWN BY: JRD
CHECKED BY: DEV

DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975, EXPIRATION DATE: MAY 26, 2020.
1/2/19

STATE OF MARYLAND — CARLTON KENNETH GUTSCHICK — NO. 12975 — PROFESSIONAL ENGINEER

STORMWATER MANAGEMENT NOTES and DETAILS

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	65 OF 92

F 17-001

L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PH3)\13013_65-66_SWM NOTES & DETAILS.dwg,
PLOTTED: 12/28/2018 11:26 AM, LAST SAVED: 11/29/2018 11:03 AM, PLOTTED BY: Jennifer R. Dicks

APPENDIX B.1.1. - SUPPLEMENTAL POND SPECIFICATIONS (NON-378)

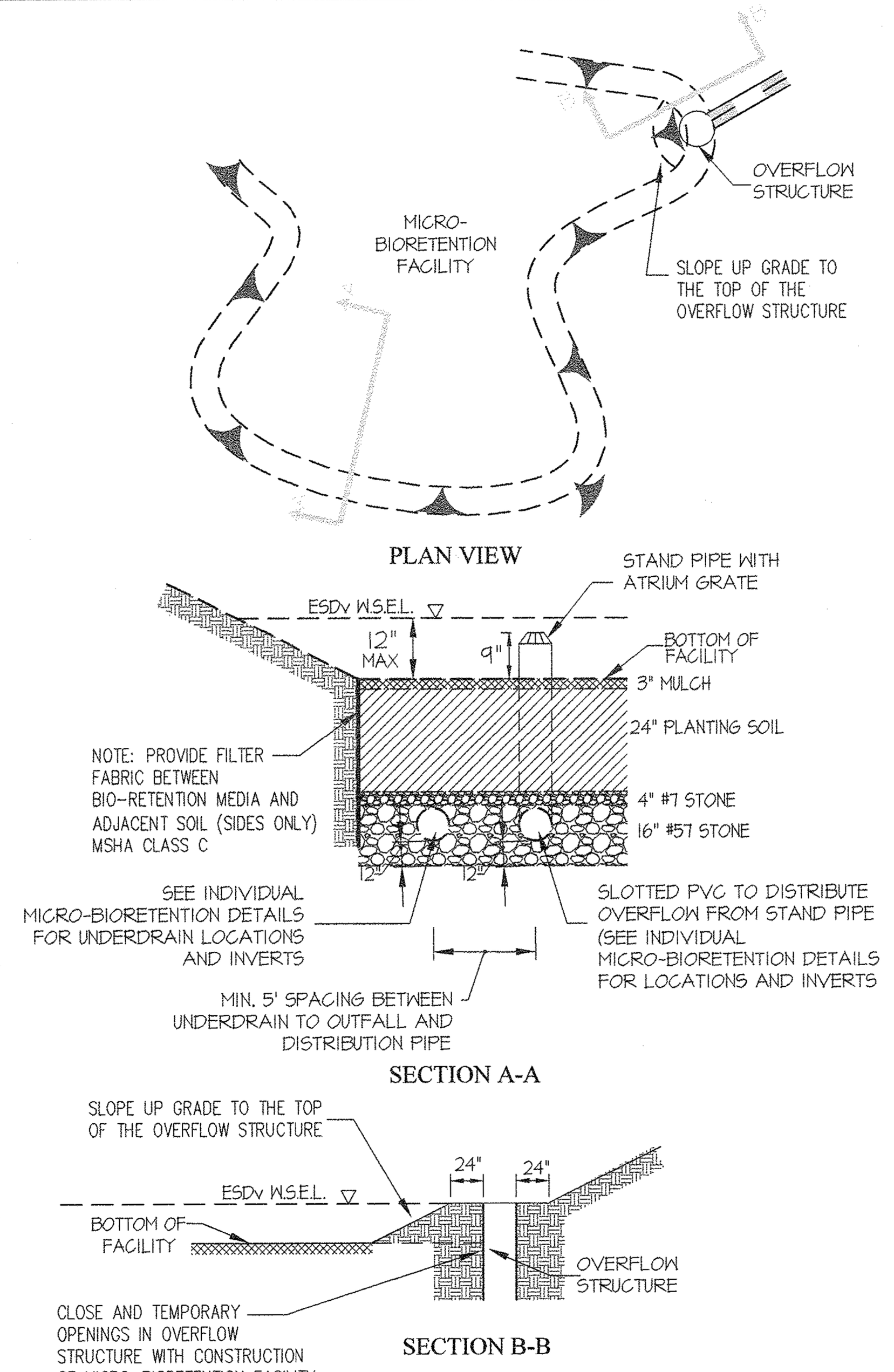
SUPPLEMENTAL STORMWATER PONDS AND WETLAND SPECIFICATIONS (NON-378)

THESE NOTES AND SPECIFICATIONS ARE IN ADDITION TO THE MD-378 SPECIFICATIONS. IF THERE IS ANY QUESTIONS AS TO THE APPLICABILITY, THE MD-378 SPECIFICATIONS SUPERCEDE.

1. IT IS PREFERRED TO USE THE SAME MATERIAL IN THE EMBANKMENT AS IS BEING INSTALLED FOR THE CORE TRENCH. IF THIS IS NOT POSSIBLE BECAUSE THE APPROPRIATE MATERIAL IS NOT AVAILABLE, A DAM CORE WITH A SHALL MAY BE USED. THE CROSS-SECTION OF THE STORMWATER FACILITY SHOULD SHOW THE LIMITS OF THE DAM CORE (UP TO 10-YEAR WATER SURFACE ELEVATION) AS WELL AS THE ACCEPTABLE MATERIALS FOR THE SHELL. THE SHAPE OF THE DAM CORE AND THE MATERIAL TO BE USED IN THE SHELL SHOULD BE PROVIDED BY THE GEOTECHNICAL ENGINEER.
2. IF THE COMPACTION TESTS FOR THE SITE IMPROVEMENTS IS USING MODIFIED PROCTOR (AASHTO T-180), THEN TO MAINTAIN ON-SITE CONSISTENCY, THE MODIFIED PROCTOR MAY BE USED IN LIEU OF A STANDARD PROCTOR (AASHTO T-99). THE MINIMUM DENSITY USING THE MODIFIED PROCTOR TEST METHOD SHALL BE AT LEAST 92% OF THE MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT OF ±2% OF THE OPTIMUM. THE MINIMUM REQUIRED DENSITY USING THE STANDARD PROCTOR TEST METHOD SHALL BE AT LEAST 95% OF THE MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT OF ±2% OF THE OPTIMUM.
3. FOR ALL STORMWATER MANAGEMENT FACILITIES, A GEOTECHNICAL ENGINEER OR THEIR REPRESENTATIVE MUST BE PRESENT TO VERIFY COMPACTION IN ACCORDANCE WITH THE SELECTED TEST METHOD. THIS INFORMATION NEEDS TO BE PROVIDED IN A REPORT TO THE DESIGN ENGINEER, SO THAT CERTIFICATION OF THE CONSTRUCTION OF THE FACILITY, IN ACCORDANCE WITH MD-378 SPECIFICATIONS, CAN BE MADE.
4. A 4-INCH LAYER OF TOPSOIL SHALL BE PLACED ON ALL DISTURBED AREAS OF THE DAM EMBANKMENT. SEEDING, LIMING, FERTILIZING, MULCHING, ETC. SHALL BE IN ACCORDANCE WITH MARYLAND SOIL CONSERVATION SERVICE MD-342 OR THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL PERMANENT SEEDING, SECTION IN CHAPTER 20. THE PURPOSE OF THE TOPSOIL IS TO ESTABLISH A GOOD GROWTH OF GRASS, WHICH IS NOT ALWAYS POSSIBLE WITH SOME OF THE MATERIALS THAT MAY BE PLACED FOR THE EMBANKMENT FILL.
5. GEOTEXTILE PLACED BENEATH RIP-RAP SHALL BE CLASS "C" GEOTEXTILE OR BETTER (SEE SECTION 24.0, MATERIAL SPECIFICATIONS, 1994 STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL (MDE, 1994). SOME ACCEPTABLE GEOTEXTILES THAT MEET THE CLASS "C" CRITERIA INCLUDE:

   AMOCO 4552 — CARTHAGE FX-70S
   GEOLON N70 — MIRAFI 180-N
   WEBTEC N07

   THIS IS ONLY A PARTIAL LISTING OF AVAILABLE GEOTEXTILES BASED ON INFORMATION PROVIDED BY THE MANUFACTURES OF THE 1997 SPECIFIER'S GUIDE DATED DECEMBER 1996. IT IS THE RESPONSIBILITY OF THE ENGINEER TO VERIFY THE ADEQUACY OF THE MATERIAL, AS THERE ARE CHANGES IN THE MANUFACTURING PROCESS AND THE TYPE OF FABRIC USED, WHICH MAY AFFECT THE CONTINUED ACCEPTANCE.
6. A RULE OF THUMB TO DETERMINE WHEN AN EXCAVATED POND MAY NEED TO BE CONSIDERED AN EMBANKMENT POND IS AS FOLLOWS:
   PROVIDE CALCULATION OF 10H + 20 FEET = L, WHERE H HEIGHT FROM POND BOTTOM TO TOP OF DAM. IF THE PROJECTION OF L, DOWNSTREAM IS A HORIZONTAL LINE FROM THE UPSTREAM TOE OF SLOPE IS BELOW EXISTING GROUND, THE POND CAN BE CONSIDERED AN EXCAVATED POND. IN ADDITION, THE EXISTING GROUND SLOPE, DOWNSTREAM OF THE TOE, MUST BE LESS THAN 10%.
7. THE DESIGN ENGINEER AND GEOTECHINCAL ENGINEER SHOULD MAKE THE DETERMINATION THAT THE SETTLEMENT OF THE POND WILL NOT CAUSE EXCESSIVE JOINT EXTENSION. FOR FURTHER INFORMATION ON JOINT ANALYSIS, SEE NRCE PUBLICATION TR-18.
8. FILL PLACEMENT SHALL NOT EXCEED A MAXIMUM 8-INCH. EACH LIFT SHALL BE CONTINUOUS FOR THE ENTIRE LENGTH OF THE EMBANKMENT.
9. THE EMBANKMENT FILL SHALL NOT BE PLACED HIGHER THAN THE CENTERLINE OF THE PRINCIPAL SPILLWAY UNTIL AFTER THE PRINCIPAL SPILLWAY HAS BEEN INSTALLED. IF THE EMBANKMENT NEEDS TO BE EXCAVATED TO INSTALL THE PRINCIPAL SPILLWAY, THE SIDE SLOPE SHALL BE NO LESS THAN 2:1
10. THE SIDE SLOPES OF A CUT TO REPAIR A DAM, INSTALL A PRINCIPAL SPILLWAY FOR AN EXCAVATED POND, OR OTHER REPAIR WORK, SHALL BE NO LESS THAN 2:1.



TYPICAL MICRO-BIORETENTION SECTION SCALE: N.T.S.

GENERAL NOTES

1. MATERIAL SPECIFICATIONS
THE ALLOWABLE MATERIALS TO BE USED IN THESE MICRO-BIORETENTION PRACTICES ARE DETAILED IN TABLE B.4.1.

2. PLANTING SOIL
THE SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE MICRO-BIORETENTION PRACTICE THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05.

THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:

SOIL COMPONENT - LOAMY SAND OR SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION)
ORGANIC CONTENT - MIN. 10% BY DRY WEIGHT (ASTM D 2974). IN GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (60-65%) AND COMPOST (35-40%) OR SANDY LOAM (30%), COARSE SAND (30%), AND COMPOST (40%).
CLAY CONTENT - MEDIA SHALL HAVE A CLAY CONTENT OF LESS THAN 5%
PH RANGE - SHOULD BE BETWEEN 5.5-7.0. AMENDMENTS (E.G., LIME, IRON SULFATE PLUS SULFUR) MAY BE MIXED INTO THE SOIL TO INCREASE OR DECREASE PH.

THERE SHALL BE AT LEAST ONE SOIL TEST PER PROJECT. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH, AND ADDITIONAL TESTS OF ORGANIC MATTER, AND SOLUBLE SALTS. A TEXTURAL ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.

3. COMPACTION
IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF THE BIORETENTION PRACTICES AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. IF PRACTICES ARE EXCAVATED USING A LOADER, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARSH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TURF TYPE TIRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LUGS, OR HIGH PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.

COMPACTION CAN BE ALLEVIATED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS A CHISEL PLOW, RIPPER, OR SUBSOILER. THESE TILLING OPERATIONS ARE TO REFRACTURE THE SOIL PROFILE THROUGH THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.

ROTOTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY PONDED WATER BEFORE PREPARING (ROTOTILLING) BASE.

WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTOTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER OF THE TOPSOIL TO FINAL GRADE.

WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LIFTS 12" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.

4. PLANT MATERIAL
RECOMMENDED PLANT MATERIAL FOR MICRO-BIORETENTION PRACTICES CAN BE FOUND IN APPENDIX A, SECTION A.2.3.

5. PLANT INSTALLATION
MULCH SHOULD BE PLACED TO A UNIFORM THICKNESS OF 2" TO 3". SHREDDED HARDWOOD MULCH IS THE ONLY ACCEPTED MULCH. PINE MULCH AND WOOD CHIPS WILL FLOAT AND MOVE TO THE PERIMETER OF THE BIORETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE. SHREDDED MULCH MUST BE WELL AGED (6 TO 12 MONTHS) FOR ACCEPTANCE.

ROOT STOCK OF THE PLANT MATERIAL SHALL BE KEPT MOIST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED SO 1/8TH OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING PIT SHALL BE AT LEAST SIX INCHES LARGER THAN THE DIAMETER OF THE PLANTING BALL. SET AND MAINTAIN THE PLANT STRAIGHT DURING THE ENTIRE PLANTING PROCESS. THOROUGHLY WATER GROUND BED COVER AFTER INSTALLATION.

TREES SHALL BE BRACED USING 2" BY 2" STAKES ONLY AS NECESSARY AND FOR THE FIRST GROWING SEASON ONLY. STAKES ARE TO BE EQUALLY SPACED ON THE OUTSIDE OF THE TREE BALL.

GRASSES AND LEGUME SEED SHOULD BE DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND LEGUME PLUGS SHALL BE PLANTED FOLLOWING THE NON-GRASS GROUND COVER PLANTING SPECIFICATIONS.

THE TOPSOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY FUNCTION OF THE BIORETENTION STRUCTURE IS TO IMPROVE WATER QUALITY. ADDING FERTILIZERS DEFEATS, OR AT A MINIMUM, IMPEDES THIS GOAL. ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTOTILL UREA FERTILIZER AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET.

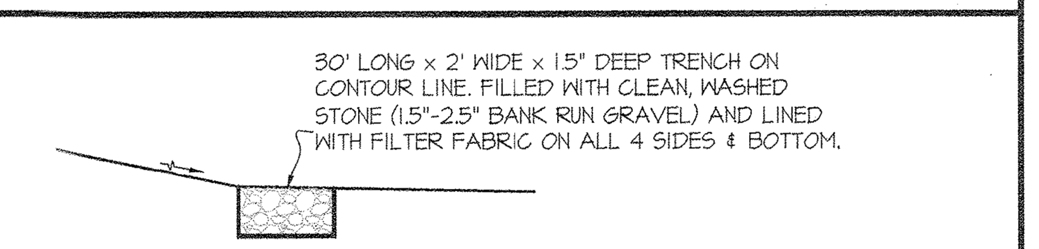
6. UNDERDRAINS
UNDERDRAINS SHOULD MEET THE FOLLOWING CRITERIA:

- PIPE- SHOULD BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTMF 758, TYPE PS 28, OR AASHTO-M-278) IN A GRAVEL LAYER. THE PREFERRED MATERIAL IS SLOTTED, 4" RIGID PIPE (E.G., PVC OR HDPE).
- PERFORATIONS - IF PERFORATED PIPE IS USED, PERFORATIONS SHOULD BE 3/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH A ¼" (NO. 4 OR 4X4) GALVANIZED HARDWARE CLOTH
- GRAVEL -THE GRAVEL LAYER (NO. 57 STONE PREFERRED) SHALL BE AT LEAST 3" THICK ABOVE AND BELOW THE UNDERDRAIN.
- THE MAIN COLLECTOR PIPE SHALL BE AT A MINIMUM 0.5% SLOPE
- A RIGID, NON-PERFORATED OBSERVATION WELL MUST BE PROVIDED (ONE PER EVERY 1,0000 SQUARE FEET) TO PROVIDE A CLEAN-OUT PORT AND MONITOR PERFORMANCE OF THE FILTER.
- A 4" LAYER OF PEA GRAVEL (1/8" TO 3/8" STONE) SHALL BE LOCATED BETWEEN THE FILTER MEDIA AND UNDERDRAIN TO PREVENT MIGRATION OF FINES INTO THE UNDERDRAIN. THIS LAYER MAY BE CONSIDERED PART OF THE FILTER BED WHEN BED THICKNESS EXCEEDS 24"

THE MAIN COLLECTOR PIPE FOR UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.5%. OBSERVATION WELLS AND/OR CLEAN-OUT PIPES MUST BE PROVIDED (ONE MINIMUM PER EVERY 1000 SQUARE FEET OF SURFACE AREA).

7. MISCELLANEOUS

THE BIORETENTION FACILITY MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.



LEVEL SPREADER NOTES:

1. THE LEVEL SPREADER SHALL BE CONSTRUCTED WITH THE TOP OF THE DEVICE AT AN EQUAL ELEVATION AT ALL POINTS ALONG THE LENGTH OF THE DEVICE.
2. THE SPREADER DEVICE SHALL BE LOCATED ON THE RESIDENTIAL PROPERTY, OUTSIDE THE BUILDABLE LOT AREA. THE DEVICE SHALL NOT CROSS PROPERTY LINES.
3. THE LEVEL SPREADER SHALL BE INSTALLED AFTER THE CONTRIBUTING SITE HAS BEEN STABILIZED UNLESS FILTER FABRIC IS PLACED OVER THE DEVICE IMMEDIATELY AFTER CONSTRUCTION TO DIVERT SEDIMENT FROM ENTERING THE DEVICE. AFTER THE SITE HAS BEEN STABILIZED AND WITH THE INSPECTOR'S APPROVAL, THE FABRIC MAY BE REMOVED.
4. MAINTENANCE SHALL BE PERFORMED BY THE OWNER OF THE LEVEL SPREADER WHEN SEDIMENT IS VISUALLY APPARENT WITHIN THE STONE VOIDS. THE PORTION OF THE STONES THAT ARE AFFECTED SHALL BE REMOVED AND REPLACED WITH CLEAN STONE.
5. THE LEVEL SPREADER DEVICE SHALL BE LOCATED BOTH HORIZONTALLY AND VERTICALLY ON THE AS-BUILT GRADING CERTIFICATE. ELEVATIONS SHALL BE TAKEN ON THE LOW SIDE OF THE SPREADER AT THE STONE/GROUND INTERFACE. SPOT SHOTS SHALL BE TAKEN EVERY FIVE (5) FEET AND AT EACH END. THE LEVEL SPREADER SHALL BE CONSTRUCTED TO WITHIN 6" TO 8" OF THE DESIGN ELEVATION TO BE CONSIDERED AS HAVING ACCEPTABLE VERTICAL TOLERANCES.

LEVEL SPREADER DETAIL NO SCALE

OPERATION AND MAINTENANCE SCHEDULE FOR
RAINWATER HARVESTING (RAIN BARRELS) (M-1)

A. THE HOMEOWNER SHALL EMPTY BARRELS ON A MONTHLY BASIS AND CLEAN BARREL WITH A HOSE.
B. THE HOMEOWNER SHALL VERIFY INTEGRITY OF LEAF SCREENS, GUTTERS, DOWNSPOUTS, SPIGOTS, AND MOSQUITO SCREENS, AND CLEAN AND REMOVE ANY DEBRIS.
C. THE HOMEOWNER SHALL REPLACE DAMAGED COMPONENTS AS NEEDED.
D. THE HOMEOWNER SHALL DISCONNECT THE BARREL PRIOR TO WINTER, OR ALLOW THE BARREL TO DRAIN BY BOTTOM SPIGOT DURING THE WINTER SEASON.

OPERATION AND MAINTENANCE SCHEDULE FOR
DRY WELLS (M-5)

A. THE HOMEOWNER SHALL INSPECT THE MONITORING WELLS AND STRUCTURES ON A QUARTERLY BASIS AND AFTER EVERY HEAVY STORM EVENT.
B. THE HOMEOWNER SHALL RECORD THE WATER LEVELS AND SEDIMENT BUILD UP IN THE MONITORING WELLS OVER A PERIOD OF SEVERAL DAYS TO INSURE TRENCH DRAINAGE.
C. THE HOMEOWNER SHALL MAINTAIN A LOG BOOK TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
D. WHEN THE FACILITY BECOMES CLOGGED SO THAT IT DOES NOT DRAIN DOWN WITHIN A SEVENTY-TWO (72) HOUR TIME PERIOD, CORRECTIVE ACTION SHALL BE TAKEN.
E. THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
F. ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION FACILITY HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.

OPERATION AND MAINTENANCE SCHEDULE FOR
MICRO-BIORETENTION (M-6) AND BIORETENTION SWALE (M-8)

A. THE HOA SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II, TABLE A.4.1 AND 2.
B. THE HOA SHALL PERFORM A PLANT INSPECTION IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL, TREAT DISEASED TREES AND SHRUBS, AND REPLACE ALL DEFICIENT STAKES AND WIRES.
C. THE HOA SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.
D. THE HOA SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.
E. THE HOA SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL PRIVATE STORM DRAIN PIPES AND STRUCTURES AND ALL UNDERDRAINS WITHIN THE MICRO-BIORETENTION LAYERS, REGARDLESS OF OWNERSHIP.
F. HOWARD COUNTY SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL PUBLIC STORM DRAIN PIPES AND STRUCTURES.

OPERATION AND MAINTENANCE SCHEDULE FOR
DISCONNECTION OF ROOFTOP RUNOFF (N-1)

A. MAINTENANCE OF AREAS RECEIVING DISCONNECTED RUNOFF IS GENERALLY NO DIFFERENT THAN THAT REQUIRED FOR OTHER LAWN OR LANDSCAPED AREAS. THE OWNER SHALL ENSURE THE AREAS RECEIVING RUNOFF ARE PROTECTED FROM FUTURE COMPACTION OR DEVELOPMENT OF IMPERVIOUS AREA. IN COMMERCIAL AREAS, FOOT TRAFFIC SHOULD BE DISCOURAGED AS WELL.

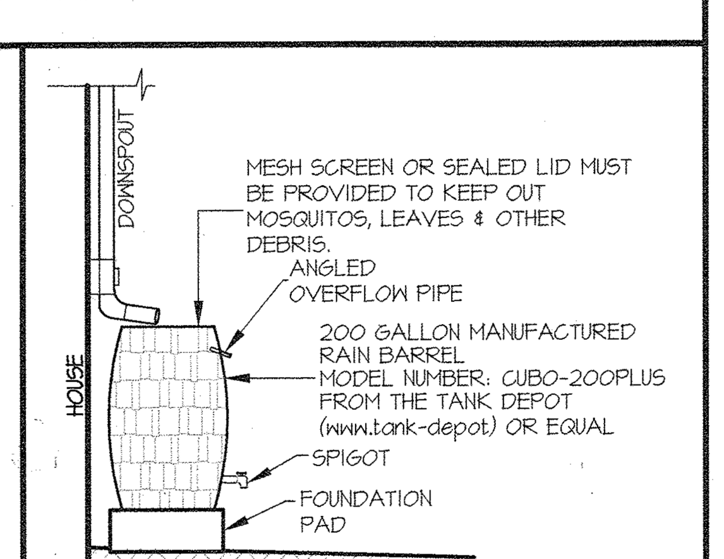
OPERATION AND MAINTENANCE SCHEDULE FOR
PRIVATELY OWNED AND MAINTAINED FILTERRA DEVICES

ACTIVATION
A. ACTIVATION OF THE FILTERRA™ UNIT IS PERFORMED ONLY BY THE SUPPLIER. PURCHASER IS RESPONSIBLE FOR FILTERRA™ INLET PROTECTION AND SUBSEQUENT CLEAN OUT COST. THIS PROCESS CANNOT COMMENCE UNTIL THE PROJECT SITE IS FULLY STABILIZED AND CLEANED (FULL LANDSCAPING, GRASS COVER, FINAL PAVING AND STREET SWEEPING COMPLETED), NEGATING THE
CHANCE OF CONSTRUCTION MATERIALS CONTAMINATING THE FILTERRA™ SYSTEM. CARE SHALL BE TAKEN DURING CONSTRUCTION NOT TO DAMAGE THE PROTECTIVE THROAT AND TOP PLATES.
B. ACTIVATION INCLUDES INSTALLATION OF PLANT(S) AND MULCH LAYERS AS NECESSARY.

MAINTENANCE
A. EACH CORRECTLY INSTALLED FILTERRA™ UNIT IS TO BE MAINTAINED BY THE SUPPLIER, OR A SUPPLIER APPROVED CONTRACTOR FOR A MINIMUM PERIOD OF 1 YEAR. THE COST OF THIS SERVICE IS TO BE INCLUDED IN THE PRICE OF EACH FILTERRA™ UNIT. EXTENDED MAINTENANCE CONTRACTS ARE AVAILABLE AT EXTRA COST UPON REQUEST.

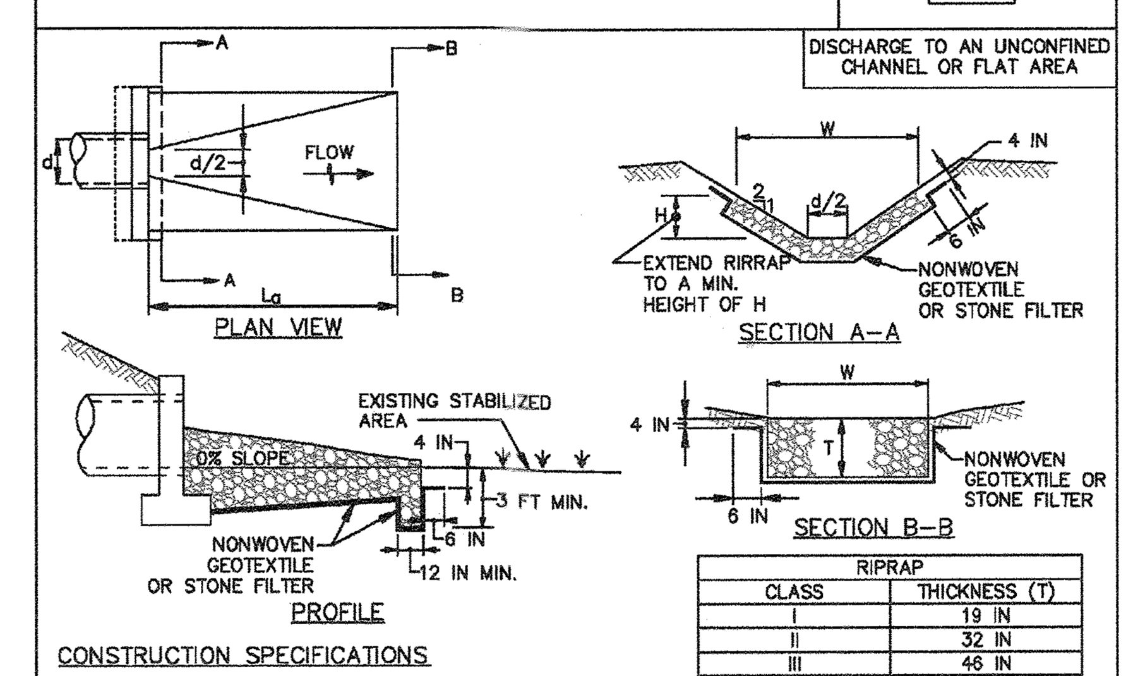
B. ANNUAL MAINTENANCE CONSISTS OF A MAXIMUM OF (2) SCHEDULED VISITS. THE VISITS ARE SCHEDULED SEASONALLY; THE SPRING VISIT AIMS TO CLEAN UP AFTER WINTER LOADS INCLUDING SALTS AND SANDS. THE FALL VISIT HELPS THE SYSTEM BY REMOVING EXCESSIVE LEAFLITTER.

C. EACH MAINTENANCE VISIT CONSISTS OF THE FOLLOWING TASKS.
1. FILTERRA™ UNIT INSPECTION
2. FOREIGN DEBRIS, SILT, MULCH & TRASH REMOVAL
3. FILTER MEDIA EVALUATION AND RECHARGE AS NECESSARY
4. PLANT HEALTH EVALUATION AND PRUNING OR REPLACEMENT AS NECESSARY
5. REPLACEMENT OF MULCH
6. DISPOSAL OF ALL MAINTENANCE REFUSE ITEMS
7. MAINTENANCE RECORDS UPDATED AND STORED (REPORTS AVAILABLE UPON REQUEST)
D. THE BEGINNING AND ENDING DATE OF SUPPLIER'S OBLIGATION TO MAINTAIN THE INSTALLED SYSTEM SHALL BE DETERMINED BY THE SUPPLIER AT THE TIME THE SYSTEM IS ACTIVATED. OWNERS MUST PROMPTLY NOTIFY THE SUPPLIER OF ANY DAMAGE TO THE PLANT(S), WHICH CONSTITUTE(S) AN INTEGRAL PART OF THE BIORETENTION TECHNOLOGY.



RAIN BARREL DETAIL NO SCALE

DETAIL D-4-1-C ROCK OUTLET PROTECTION III — STANDARD SYMBOL: ROPIII



RIPRAP	
CLASS	THICKNESS (T)
I	19 IN
II	32 IN
III	46 IN

CONSTRUCTION SPECIFICATIONS

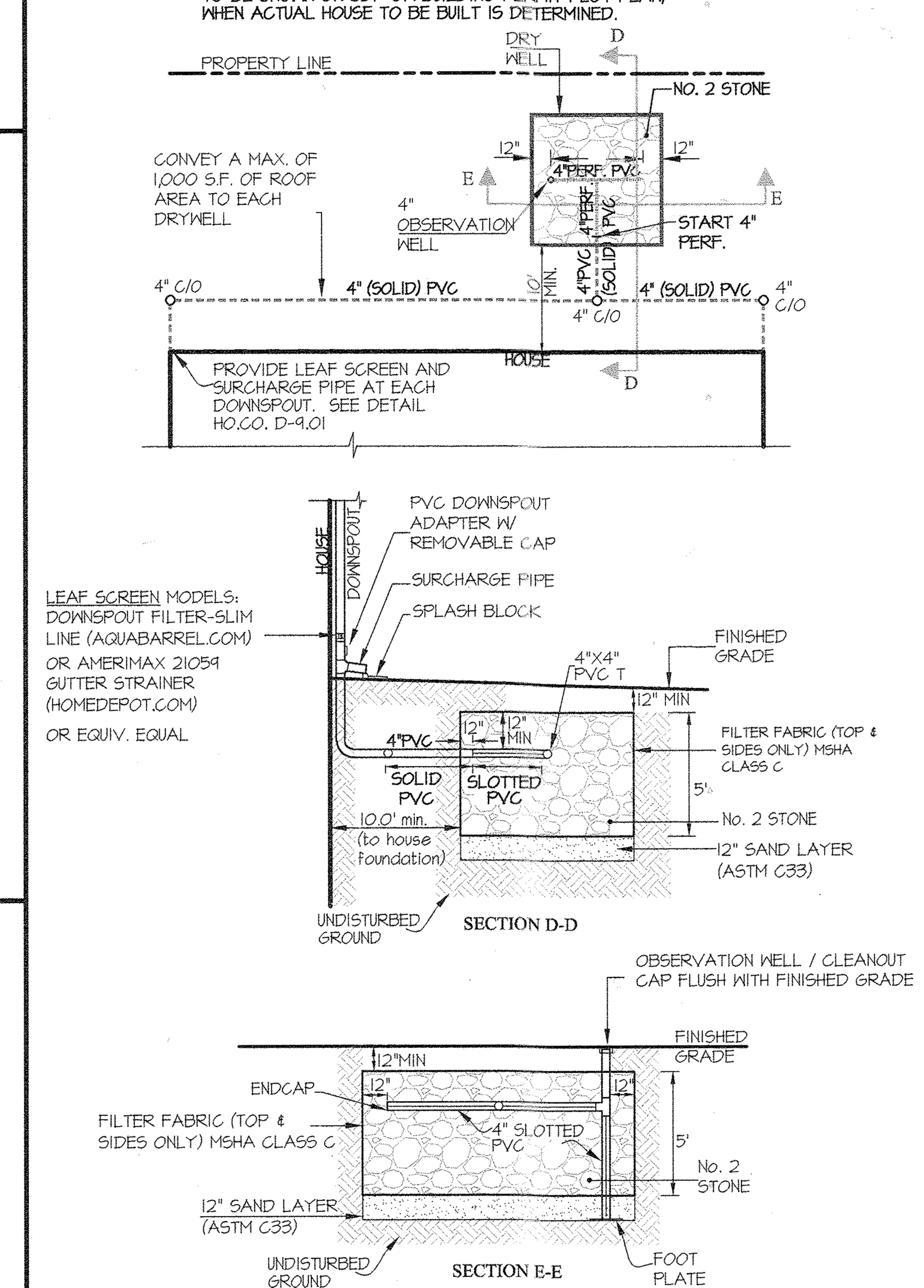
1. RIPRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
2. USE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCTURING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE TOGETHER.
3. PREPARE THE SUBGRADE FOR GEOTEXTILE OR STONE FILTER (⅜ TO 1½ INCH MINIMUM STONE FOR 6 INCH MINIMUM DEPTH) AND RIPRAP TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
4. EXTEND GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIPRAP AND EMBED AT LEAST 4 INCHES AT SIDES OF RIPRAP.
5. CONSTRUCT RIPRAP OUTLET TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. PLACE STONE FOR RIPRAP OUTLET IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE RIPRAP IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
6. WHERE NO ENDWALL IS USED, CONSTRUCT THE UPSTREAM END OF THE APRON SO THAT THE WIDTH IS TWO TIMES THE DIAMETER OF THE OUTLET PIPE, AND EXTEND THE STONE UNDER THE OUTLET BY A MINIMUM OF 18 INCHES.
7. CONSTRUCT APRON WITH 0% SLOPE ALONG ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STONE SO THAT IT BLENDS IN WITH EXISTING GROUND.
8. MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND RIPRAP DISLODGED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

D.22

NOTE: EXACT LOCATION AND DIMENSIONS OF DRYWELLS TO BE SHOWN ON SDP OR BUILDING PERMIT PLOT PLAN, WHEN ACTUAL HOUSE TO BE BUILT IS DETERMINED.



DRYWELL NOTE:

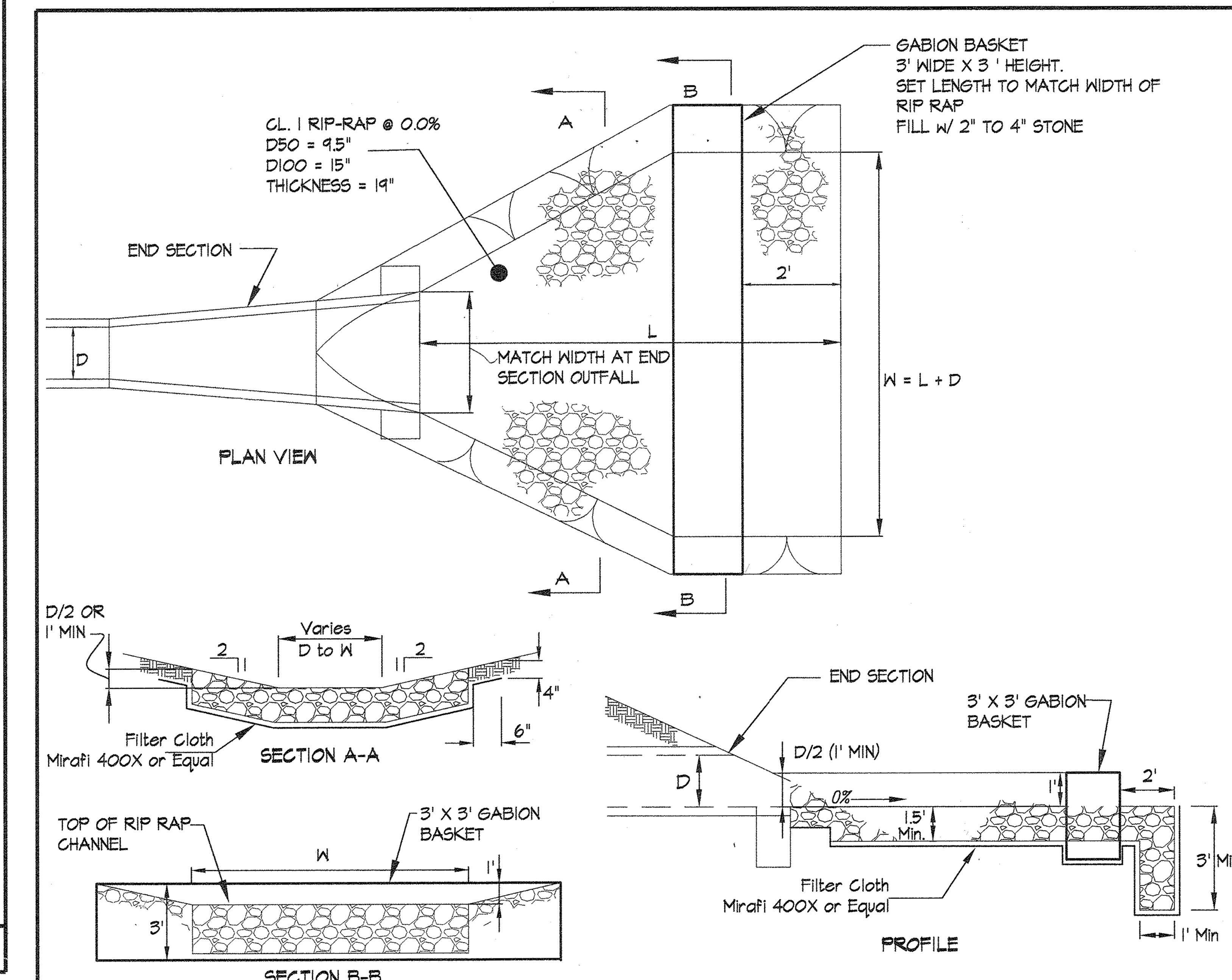
DRYWELLS SHOULD NOT BE PLANNED IN THE PROXIMITY OF THE STEEPLY SLOPING AREAS AS THE STABILITY OF THE SLOPE MAY BE IMPACTED. IF CONSTRUCTION OF THE SWM FACILITIES IN SLOPING AREAS IS UNAVOIDABLE, THE FACILITIES SHOULD BE LINED TO REDUCE THE POTENTIAL FOR INFILTRATION AND SEEPAGE TOWARD THE SLOPE.

DRYWELL DETAIL NO SCALE

Appendix B.4. Construction Specifications for Environmental Site Design Practices

Table B.4.1 Materials Specifications for Micro-Bioretention, Rain Gardens & Landscape Infiltration-

Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
Planting soil [2' to 4' deep]	loamy sand (60 - 65%) & compost (35 – 40%) or sandy loam (30%), coarse sand (30%) & compost (40%)	n/a	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood		aged 6 months, minimum; no pine or wood chips
Pea gravel diaphragm	pea gravel: ASTM-D-448	NO. 8 OR NO. 9 (1/8" TO 3/8")	
Curtain drain	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile		n/a	PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (3/8" to 3/4")	
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes. Perforated pipe shall be wrapped with ¼-inch galvanized hardware cloth
Poured in place concrete (if required)	MSHA Mix No. 3; f'_c = 3500 psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) *not using previously approved State or local standards* requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350.R/89; vertical loading [H-10 or H-20]; allowable horizontal loading (based on soil pressures); and analysis of potential cracking
Sand	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone (**AASHTO)** #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.



DETAIL FOR OUTFALL ON SLOPES GREATER THAN 10% SCALE: NTS

STORMWATER MANAGEMENT GENERAL NOTES:
1. THE STORMWATER MANAGEMENT OBLIGATION WAS MET WITH ESD PRACTICES INCLUDING: ROOFTOP DISCONNECTS (N-1), SHEET FLOW TO CONSERVATION AREAS (N-3), RAINWATER HARVESTING (M-1), DRY WELLS (M-5), MICRO-BIORETENTION FACILITIES (M-6), AND SWALES (M-8).

2. WITH THE EXCEPTION OF THE MICRO-BIORETENTION FACILITIES THAT LIE WITHIN THE COUNTY ROAD RIGHT-OF-WAY, ALL ESD PRACTICES WILL BE OWNED AND MAINTAINED BY THE HOME OWNER'S ASSOCIATION.

3. ON LOT ESD PRACTICES SHALL BE SUBJECT TO RECORDED DOCUMENTS OUTLINING OWNERSHIP AND FUTURE MAINTENANCE. THE HOMEOWNER WILL BE RESPONSIBLE FOR THE MAINTENANCE OF ON LOT ESD DEVICES.

4. IN ADDITION TO STANDARD MDE REQUIREMENTS, THE CONTRACTOR SHOULD BE PREPARED TO DEWATER EXCAVATIONS AND MAINTAIN TRAFFICABILITY OF THE SWM AREAS DURING CONSTRUCTION. ALL EXCAVATIONS SHOULD BE PROPERLY SHORED AND SUPPORTED IN ACCORDANCE WITH THE LATEST OSHA REQUIREMENTS. IF INFILTRATION FACILITY AREAS ARE EXCAVATED USING A LOADER, THE CONTRACTOR SHOULD USE WIDE-TRACK OR LIGHTWEIGHT EQUIPMENT WITH TURF TIRES TO MINIMIZE COMPACTION OF THE SUBGRADE SOILS. EXCESSIVE COMPACTION WITHIN THE INFILTRATION AREA WILL RESULT IN POOR PERFORMANCE OF THE FACILITIES. THE BASE OF THE INFILTRATION FACILITIES SHOULD BE TILLED TO A DEPTH OF 12 INCHES TO ALLEVIATE ANY COMPACTION OF THE SUBGRADE BY EXCAVATION EQUIPMENT. BACKFILL OF THE INFILTRATION FACILITIES SHOULD BE PERFORMED IN ACCORDANCE WITH MDE GUIDELINES.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[signature] 1/29/2019
Chief, Bureau of Highways — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
[signature] 6-27-19
Chief, Division of Land Development — Date
[signature] 6.24.19
Chief, Development Engineering Division — Date

GLW
PLANNING | ENGINEERING | SURVEYING
3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY: JRD	DATE	REVISION	BY	APP'R.
DRAWN BY: JRD				
CHECKED BY: DEV				

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975, EXPIRATION DATE: MAY 26, 2020
1/2/19 [signature]
STATE OF MARYLAND — CARLTON KENNETH GUTSCHICK — NO. 12975 — PROFESSIONAL ENGINEER

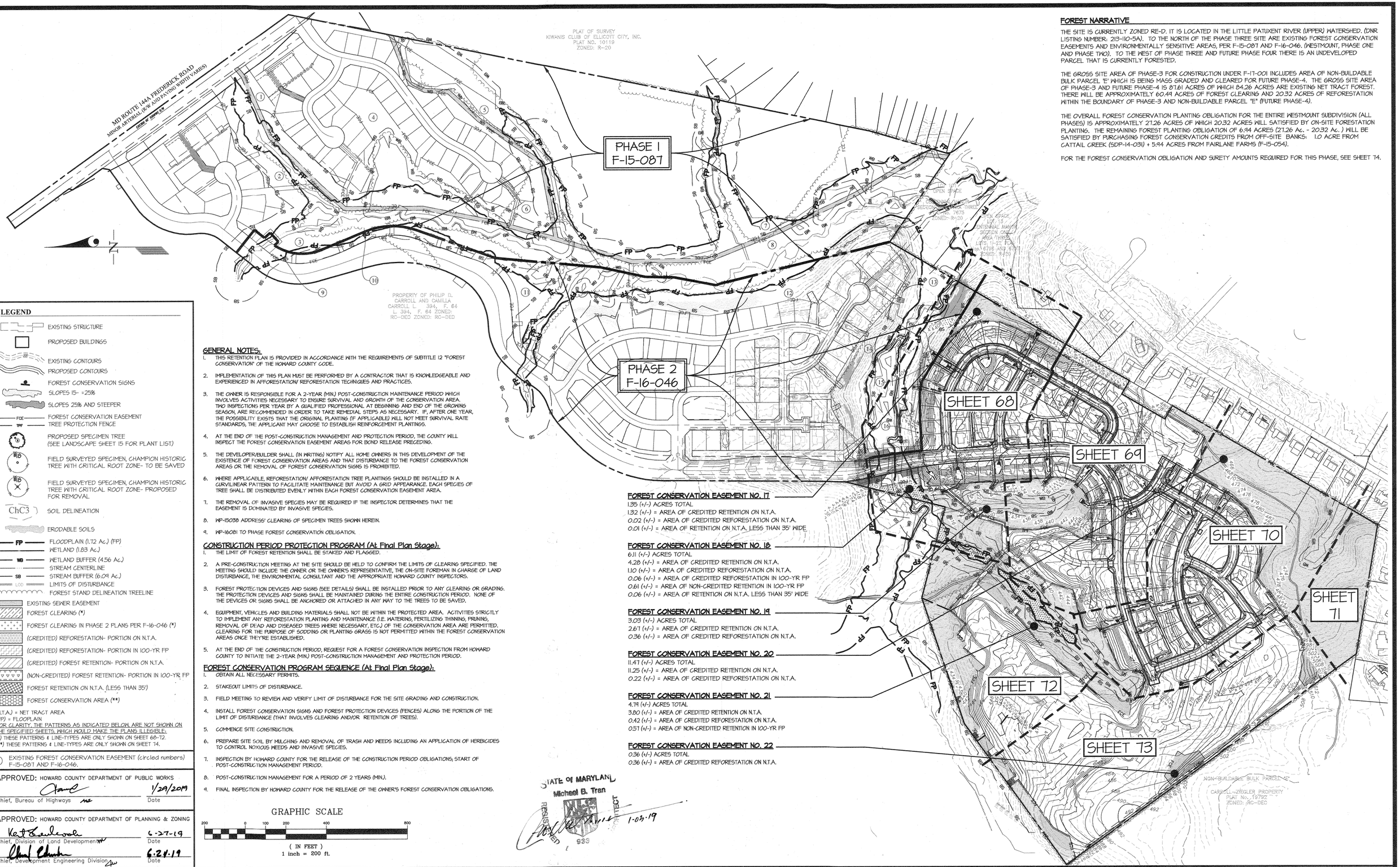
STORMWATER MANAGEMENT NOTES and DETAILS

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294
AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	66 OF 92

L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PH3)\13013_65-66_SWM NOTES & DETAILS.dwg, PLOTTED: 12/28/2018 11:27 AM, LAST SAVED: 11/29/2018 11:03 AM, PLOTTED BY: Jennifer R. Dicks



FOREST NARRATIVE

THE SITE IS CURRENTLY ZONED RE-D. IT IS LOCATED IN THE LITTLE PATUXENT RIVER (UPPER) WATERSHED. (DNR LISTING NUMBER: 2I3-II0-5A). TO THE NORTH OF THE PHASE THREE SITE ARE EXISTING FOREST CONSERVATION EASEMENTS AND ENVIRONMENTALLY SENSITIVE AREAS, PER F-15-087 AND F-16-046. (WESTMOUNT, PHASE ONE AND PHASE TWO). TO THE WEST OF PHASE THREE AND FUTURE PHASE FOUR THERE IS AN UNDEVELOPED PARCEL THAT IS CURRENTLY FORESTED.

THE GROSS SITE AREA OF PHASE-3 FOR CONSTRUCTION UNDER F-17-001 INCLUDES AREA OF NON-BUILDABLE BULK PARCEL 'E' WHICH IS BEING MASS GRADED AND CLEARED FOR FUTURE PHASE-4. THE GROSS SITE AREA OF PHASE-3 AND FUTURE PHASE-4 IS 87.61 ACRES OF WHICH 84.26 ACRES ARE EXISTING NET TRACT FOREST. THERE WILL BE APPROXIMATELY 60.49 ACRES OF FOREST CLEARING AND 20.32 ACRES OF REFORESTATION WITHIN THE BOUNDARY OF PHASE-3 AND NON-BUILDABLE PARCEL 'E' (FUTURE PHASE-4).

THE OVERALL FOREST CONSERVATION PLANTING OBLIGATION FOR THE ENTIRE WESTMOUNT SUBDIVISION (ALL PHASES) IS APPROXIMATELY 27.26 ACRES OF WHICH 20.32 ACRES WILL SATISFIED BY ON-SITE FORESTATION PLANTING. THE REMAINING FOREST PLANTING OBLIGATION OF 6.94 ACRES (27.26 Ac. - 20.32 Ac.) WILL BE SATISFIED BY PURCHASING FOREST CONSERVATION CREDITS FROM OFF-SITE BANKS: 1.0 ACRE FROM CATTAIL CREEK (SDP-14-031) + 5.94 ACRES FROM FAIRLANE FARMS (F-15-054).

FOR THE FOREST CONSERVATION OBLIGATION AND SURETY AMOUNTS REQUIRED FOR THIS PHASE, SEE SHEET 74.

LEGEND

- EXISTING STRUCTURE
- PROPOSED BUILDINGS
- EXISTING CONTOURS
- PROPOSED CONTOURS
- FOREST CONSERVATION SIGNS
- SLOPES 15- =25%
- SLOPES 25% AND STEEPER
- FCE — FOREST CONSERVATION EASEMENT
- TPF — TREE PROTECTION FENCE
- PROPOSED SPECIMEN TREE (SEE LANDSCAPE SHEET 15 FOR PLANT LIST)
- FIELD SURVEYED SPECIMEN, CHAMPION HISTORIC TREE WITH CRITICAL ROOT ZONE- TO BE SAVED
- FIELD SURVEYED SPECIMEN, CHAMPION HISTORIC TREE WITH CRITICAL ROOT ZONE- PROPOSED FOR REMOVAL
- ChC3 — SOIL DELINEATION
- ERODABLE SOILS
- FP — FLOODPLAIN (1.72 Ac.) (FP)
- WETLAND (1.83 Ac.)
- WB — WETLAND BUFFER (4.56 Ac.)
- STREAM CENTERLINE
- SB — STREAM BUFFER (6.04 Ac.)
- LOD — LIMITS OF DISTURBANCE
- FOREST STAND DELINEATION TREELINE
- EXISTING SEWER EASEMENT
- FOREST CLEARING (*)
- FOREST CLEARING IN PHASE 2 PLANS PER F-16-046 (*)
- (CREDITED) REFORESTATION- PORTION ON N.T.A.
- (CREDITED) REFORESTATION- PORTION IN 100-YR FP
- (CREDITED) FOREST RETENTION- PORTION ON N.T.A.
- (NON-CREDITED) FOREST RETENTION- PORTION IN 100-YR FP
- FOREST RETENTION ON N.T.A. (LESS THAN 35')
- FOREST CONSERVATION AREA (**)

(N.T.A.) = NET TRACT AREA
(FP) = FLOODPLAIN
FOR CLARITY, THE PATTERNS AS INDICATED BELOW ARE NOT SHOWN ON THE SPECIFIED SHEETS, WHICH WOULD MAKE THE PLANS ILLEGIBLE:
(*) THESE PATTERNS & LINE-TYPES ARE ONLY SHOWN ON SHEET 69-72.
(**) THESE PATTERNS & LINE-TYPES ARE ONLY SHOWN ON SHEET 74.

① EXISTING FOREST CONSERVATION EASEMENT (circled numbers) F-15-087 AND F-16-046.

GENERAL NOTES:

1. THIS RETENTION PLAN IS PROVIDED IN ACCORDANCE WITH THE REQUIREMENTS OF SUBTITLE 12 "FOREST CONSERVATION" OF THE HOWARD COUNTY CODE.
2. IMPLEMENTATION OF THIS PLAN MUST BE PERFORMED BY A CONTRACTOR THAT IS KNOWLEDGEABLE AND EXPERIENCED IN AFFORESTATION/ REFORESTATION TECHNIQUES AND PRACTICES.
3. THE OWNER IS RESPONSIBLE FOR A 2-YEAR (MIN.) POST-CONSTRUCTION MAINTENANCE PERIOD WHICH INVOLVES ACTIVITIES NECESSARY TO ENSURE SURVIVAL AND GROWTH OF THE CONSERVATION AREA. TWO INSPECTIONS PER YEAR BY A QUALIFIED PROFESSIONAL AT BEGINNING AND END OF THE GROWING SEASON, ARE RECOMMENDED IN ORDER TO TAKE REMEDIAL STEPS AS NECESSARY. IF, AFTER ONE YEAR, THE POSSIBILITY EXISTS THAT THE ORIGINAL PLANTING (IF APPLICABLE) WILL NOT MEET SURVIVAL RATE STANDARDS, THE APPLICANT MAY CHOOSE TO ESTABLISH REINFORCEMENT PLANTINGS.
4. AT THE END OF THE POST-CONSTRUCTION MANAGEMENT AND PROTECTION PERIOD, THE COUNTY WILL INSPECT THE FOREST CONSERVATION EASEMENT AREAS FOR BOND RELEASE PRECEDING.
5. THE DEVELOPER/BUILDER SHALL (IN WRITING) NOTIFY ALL HOME OWNERS IN THIS DEVELOPMENT OF THE EXISTENCE OF FOREST CONSERVATION AREAS AND THAT DISTURBANCE TO THE FOREST CONSERVATION AREAS OR THE REMOVAL OF FOREST CONSERVATION SIGNS IS PROHIBITED.
6. WHERE APPLICABLE, REFORESTATION/ AFFORESTATION TREE PLANTINGS SHOULD BE INSTALLED IN A CURVILINEAR PATTERN TO FACILITATE MAINTENANCE BUT AVOID A GRID APPEARANCE. EACH SPECIES OF TREE SHALL BE DISTRIBUTED EVENLY WITHIN EACH FOREST CONSERVATION EASEMENT AREA.
7. THE REMOVAL OF INVASIVE SPECIES MAY BE REQUIRED IF THE INSPECTOR DETERMINES THAT THE EASEMENT IS DOMINATED BY INVASIVE SPECIES.
8. WP-15038 ADDRESS' CLEARING OF SPECIMEN TREES SHOWN HEREIN.
9. WP-16081 TO PHASE FOREST CONSERVATION OBLIGATION.

CONSTRUCTION PERIOD PROTECTION PROGRAM (At Final Plan Stage):

1. THE LIMIT OF FOREST RETENTION SHALL BE STAKED AND FLAGGED.
2. A PRE-CONSTRUCTION MEETING AT THE SITE SHOULD BE HELD TO CONFIRM THE LIMITS OF CLEARING SPECIFIED. THE MEETING SHOULD INCLUDE THE OWNER OR THE OWNER'S REPRESENTATIVE, THE ON-SITE FOREMAN IN CHARGE OF LAND DISTURBANCE, THE ENVIRONMENTAL CONSULTANT AND THE APPROPRIATE HOWARD COUNTY INSPECTORS.
3. FOREST PROTECTION DEVICES AND SIGNS (SEE DETAILS) SHALL BE INSTALLED PRIOR TO ANY CLEARING OR GRADING. THE PROTECTION DEVICES AND SIGNS SHALL BE MAINTAINED DURING THE ENTIRE CONSTRUCTION PERIOD. NONE OF THE DEVICES OR SIGNS SHALL BE ANCHORED OR ATTACHED IN ANY WAY TO THE TREES TO BE SAVED.
4. EQUIPMENT, VEHICLES AND BUILDING MATERIALS SHALL NOT BE WITHIN THE PROTECTED AREA. ACTIVITIES STRICTLY TO IMPLEMENT ANY REFORESTATION PLANTING AND MAINTENANCE (I.E. WATERING, FERTILIZING THINNING, PRUNING, REMOVAL OF DEAD AND DISEASED TREES WHERE NECESSARY, ETC.) OF THE CONSERVATION AREA ARE PERMITTED. CLEARING FOR THE PURPOSE OF SODDING OR PLANTING GRASS IS NOT PERMITTED WITHIN THE FOREST CONSERVATION AREAS ONCE THEY'RE ESTABLISHED.
5. AT THE END OF THE CONSTRUCTION PERIOD, REQUEST FOR A FOREST CONSERVATION INSPECTION FROM HOWARD COUNTY TO INITIATE THE 2-YEAR (MIN) POST-CONSTRUCTION MANAGEMENT AND PROTECTION PERIOD.

FOREST CONSERVATION PROGRAM SEQUENCE (At Final Plan Stage):

1. OBTAIN ALL NECESSARY PERMITS.
2. STAKEOUT LIMITS OF DISTURBANCE.
3. FIELD MEETING TO REVIEW AND VERIFY LIMIT OF DISTURBANCE FOR THE SITE GRADING AND CONSTRUCTION.
4. INSTALL FOREST CONSERVATION SIGNS AND FOREST PROTECTION DEVICES (FENCES) ALONG THE PORTION OF THE LIMIT OF DISTURBANCE (THAT INVOLVES CLEARING AND/OR RETENTION OF TREES).
5. COMMENCE SITE CONSTRUCTION.
6. PREPARE SITE SOIL BY MULCHING AND REMOVAL OF TRASH AND WEEDS INCLUDING AN APPLICATION OF HERBICIDES TO CONTROL NOXIOUS WEEDS AND INVASIVE SPECIES.
7. INSPECTION BY HOWARD COUNTY FOR THE RELEASE OF THE CONSTRUCTION PERIOD OBLIGATIONS; START OF POST-CONSTRUCTION MANAGEMENT PERIOD.
8. POST-CONSTRUCTION MANAGEMENT FOR A PERIOD OF 2 YEARS (MIN.).
9. FINAL INSPECTION BY HOWARD COUNTY FOR THE RELEASE OF THE OWNER'S FOREST CONSERVATION OBLIGATIONS.

GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)
1 inch = 200 ft.

FOREST CONSERVATION EASEMENT NO. 17
1.35 (+/-) ACRES TOTAL
1.32 (+/-) = AREA OF CREDITED RETENTION ON N.T.A.
0.02 (+/-) = AREA OF CREDITED REFORESTATION ON N.T.A.
0.01 (+/-) = AREA OF RETENTION ON N.T.A. LESS THAN 35' WIDE

FOREST CONSERVATION EASEMENT NO. 18
6.11 (+/-) ACRES TOTAL
4.28 (+/-) = AREA OF CREDITED RETENTION ON N.T.A.
1.10 (+/-) = AREA OF CREDITED REFORESTATION ON N.T.A.
0.06 (+/-) = AREA OF CREDITED REFORESTATION IN 100-YR FP
0.61 (+/-) = AREA OF NON-CREDITED RETENTION IN 100-YR FP
0.06 (+/-) = AREA OF RETENTION ON N.T.A. LESS THAN 35' WIDE

FOREST CONSERVATION EASEMENT NO. 19
3.03 (+/-) ACRES TOTAL
2.67 (+/-) = AREA OF CREDITED RETENTION ON N.T.A.
0.36 (+/-) = AREA OF CREDITED REFORESTATION ON N.T.A.

FOREST CONSERVATION EASEMENT NO. 20
11.47 (+/-) ACRES TOTAL
11.25 (+/-) = AREA OF CREDITED RETENTION ON N.T.A.
0.22 (+/-) = AREA OF CREDITED REFORESTATION ON N.T.A.

FOREST CONSERVATION EASEMENT NO. 21
4.79 (+/-) ACRES TOTAL
3.80 (+/-) = AREA OF CREDITED RETENTION ON N.T.A.
0.42 (+/-) = AREA OF CREDITED REFORESTATION ON N.T.A.
0.57 (+/-) = AREA OF NON-CREDITED RETENTION IN 100-YR FP

FOREST CONSERVATION EASEMENT NO. 22
0.36 (+/-) ACRES TOTAL
0.36 (+/-) = AREA OF CREDITED REFORESTATION ON N.T.A.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.21.19

STATE OF MARYLAND
Michael B. Tran
REGISTERED
933
PROFESSIONAL ENGINEER
1-03-19

GLW
PLANNING | ENGINEERING | SURVEYING
3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:	DATE	REVISION	BY	APP'R.
KAB				
DRAWN BY: KAB				
CHECKED BY: MBT				

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

OVERALL FOREST CONSERVATION PLAN

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 200'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	67 OF 72

F 17-001

L:\CADD\DRAWINGS\13013\plans by dwg\woods-sd (ph3)\13013_67-74_FCP PLAN.dwg, 1/3/2019 8:36:58 AM, KEITH BENNETT

0.068± ACRES CLEARING ON N.T.A.

EX. WESTMOUNT PARKWAY

0.06± ACRES CREDITED REFORESTATION ON N.T.A.

0.01± ACRES CREDITED RETENTION ON N.T.A.

0.04± ACRES CREDITED REFORESTATION IN 100-YR FP

FOREST CONSERVATION EASEMENT NO. 18
6.11 (+/-) ACRES TOTAL
4.28 (+/-) = AREA OF CREDITED RETENTION ON N.T.A.
1.10 (+/-) = AREA OF CREDITED REFORESTATION ON N.T.A.
0.06 (+/-) = AREA OF CREDITED REFORESTATION IN 100-YR FP
0.61 (+/-) = AREA OF NON-CREDITED RETENTION IN 100-YR FP
0.06 (+/-) = AREA OF RETENTION ON N.T.A. LESS THAN 35' WIDE

0.02± ACRES CREDITED REFORESTATION IN 100-YR FP

0.03 ACRES CREDITED REFORESTATION ON N.T.A.

0.36± ACRES NON-CREDITED RETENTION IN 100-YR FP

0.42± ACRES CREDITED RETENTION ON N.T.A. (INCLUDES PORTION ON SHEET 72)

0.25± ACRES NON-CREDITED RETENTION IN 100-YR FP (INCLUDES PORTION ON SHEET 72)

1.31± ACRES CREDITED RETENTION ON N.T.A.

NON-BUILDABLE BULK PARCEL 'F' 46.91 Ac.

NON-BUILDABLE BULK PARCEL 'E'

OS LOT 269 4.46 Ac.

OS LOT 284 0.14 Ac.

OS LOT 283 0.12 Ac.

OS LOT 282 0.12 Ac.

OS LOT 286 0.88 Ac.

OS LOT 287 0.41 Ac.

OS LOT 285 0.77 Ac.

OS LOT 270 0.12 Ac.

OS LOT 271 0.12 Ac.

OS LOT 267 1.37 Ac.

OS LOT 272 0.09 Ac.

EX. FCE-14 PER F-16-046

EX. FCE-15 PER F-16-046

EX. FCE-16 PER F-16-046

EX. FCE-13 PER F-16-046

OS LOT 155

THREE GRACES ROAD
(50' R/W PUBLIC ACCESS STREET - 24' PAVING)

WESTMOUNT PARKWAY
(MODIFIED SUBURBAN COLLECTOR - PAVING VARIES)

WALPOLE WAY
(50' R/W PUBLIC ACCESS STREET - 24' PAVING)

LOT 174 · LOT 175 · LOT 176 · LOT 177 · LOT 178 · LOT 179 · LOT 180 · LOT 181 · LOT 182 · LOT 183 · LOT 184 · LOT 185 · LOT 186

LOT 218 · LOT 219 · LOT 220 · LOT 221 · LOT 222 · LOT 223 · LOT 224 · LOT 225 · LOT 226 · LOT 227 · LOT 228 · LOT 229 · LOT 230 · LOT 231 · LOT 232 · LOT 214 · LOT 215 · LOT 216 · LOT 217

3.35± ACRES CLEARING ON N.T.A. (INCLUDES PORTION ON SHEETS 64)

12.15± ACRES CLEARING ON N.T.A. (INCLUDES PORTION ON SHEETS 68)

0.75± ACRES CREDITED RETENTION ON N.T.A. (INCLUDES PORTION ON SHEET 64)

0.01± ACRES RETENTION ON N.T.A. LESS THAN 35 FEET.

1.14± ACRES CLEARING ON N.T.A. (PREVIOUSLY ACCOUNTED FOR IN PHASE 2 PLANS PER F-16-087)

0.02± ACRES CREDITED REFORESTATION ON N.T.A.

0.57± ACRES CREDITED RETENTION ON N.T.A. (INCLUDES PORTION ON SHEET 69)

0.07± ACRES CREDITED REFORESTATION ON N.T.A.

2.54± ACRES CREDITED RETENTION ON N.T.A. (INCLUDES PORTION ON SHEET 64)

0.47± ACRES CREDITED REFORESTATION ON N.T.A. (INCLUDES PORTION ON SHEET 72)

0.09± ACRES CREDITED REFORESTATION ON N.T.A. (INCLUDES PORTION ON SHEET 72)

0.02± ACRES CREDITED REFORESTATION ON N.T.A.

0.02± ACRES CREDITED RETENTION ON N.T.A.

#2123 · #2124 · #2125 · #2126 · #2127 · #2128 · #2129 · #2130 · #2131 · #2132 · #2133 · #2134 · #2135 · #2136 · #2176 · #2177 · #2178 · #2179 · #2192

E 1347,750
N 584,150

MATCHLINE FOR CONTINUATION, SEE SHEET 72

MATCHLINE FOR CONTINUATION SEE SHEET 69

PART OF FOREST CONSERVATION EASEMENT NO. 19
(SEE SHEET 69 FOR FOREST CONSERVATION AREA TOTALS)

FOREST CONSERVATION EASEMENT NO. 17
1.35 (+/-) ACRES TOTAL
1.32 (+/-) = AREA OF CREDITED RETENTION ON N.T.A.
0.02 (+/-) = AREA OF CREDITED REFORESTATION ON N.T.A.
0.01 (+/-) = AREA OF RETENTION ON N.T.A. LESS THAN 35' WIDE

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

LEGEND

- EXISTING STRUCTURE
- PROPOSED BUILDINGS
- EXISTING CONTOURS
- PROPOSED CONTOURS
- FOREST CONSERVATION SIGNS
- SLOPES 15- =25%
- SLOPES 25% AND STEEPER
- FCE — FOREST CONSERVATION EASEMENT
- TPF — TREE PROTECTION FENCE
- PROPOSED SPECIMEN TREE (SEE LANDSCAPE SHEET 15 FOR PLANT LIST)
- FIELD SURVEYED SPECIMEN, CHAMPION HISTORIC TREE WITH CRITICAL ROOT ZONE- TO BE SAVED
- FIELD SURVEYED SPECIMEN, CHAMPION HISTORIC TREE WITH CRITICAL ROOT ZONE- PROPOSED FOR REMOVAL
- ChC3 — SOIL DELINEATION
- ERODABLE SOILS
- FP — FLOODPLAIN (1.72 Ac.) (FP)
- WB — WETLAND (1.83 Ac.)
- WETLAND BUFFER (4.56 Ac.)
- STREAM CENTERLINE
- SB — STREAM BUFFER (6.09 Ac.)
- LOD — LIMITS OF DISTURBANCE
- FOREST STAND DELINEATION TREELINE
- EXISTING SEWER EASEMENT
- FOREST CLEARING (*)
- FOREST CLEARING IN PHASE 2 PLANS PER F-16-046 (*)
- (CREDITED) REFORESTATION- PORTION ON N.T.A.
- (CREDITED) REFORESTATION- PORTION IN 100-YR FP
- (CREDITED) FOREST RETENTION- PORTION ON N.T.A.
- (NON-CREDITED) FOREST RETENTION- PORTION IN 100-YR FP
- FOREST RETENTION ON N.T.A. (LESS THAN 35')
- FOREST CONSERVATION AREA (**)

(N.T.A.) = NET TRACT AREA
(FP) = FLOODPLAIN
FOR CLARITY, THE PATTERNS AS INDICATED BELOW ARE NOT SHOWN ON THE SPECIFIED SHEETS, WHICH WOULD MAKE THE PLANS ILLEGIBLE:
(*) THESE PATTERNS & LINE-TYPES ARE ONLY SHOWN ON SHEET 60-72.
(**) THESE PATTERNS & LINE-TYPES ARE ONLY SHOWN ON SHEET 74.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 6-27-19
Chief, Development Engineering Division — Date 6.24.19

STATE OF MARYLAND
Michael B. Tran
REGISTERED LANDSCAPE ARCHITECT
983
6.28.19

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

GLW
PLANNING | ENGINEERING | SURVEYING
3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY:	DATE	REVISION	BY	APP'R.
KAB				
DRAWN BY: KAB				
CHECKED BY: MBT				

FOREST CONSERVATION PLAN

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 50'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	68 OF 72

F 17-001

L:\CADD\DRAWINGS\13013\PLANS BY GLW\ROADS-SD (PH3)\13013_67-74_FCP PLAN.dwg, PLOTTED: 12/27/2018 8:34 AM, LAST SAVED: 12/26/2018 7:48 PM, PLOTTED BY: Jennifer R. Dicks

FOREST CONSERVATION EASEMENT NO. 19
3.03 (+/-) ACRES TOTAL
2.67 (+/-) = AREA OF CREDITED RETENTION ON N.T.A.
0.36 (+/-) = AREA OF CREDITED REFORESTATION ON N.T.A.

FOREST CONSERVATION EASEMENT NO. 21
4.79 (+/-) ACRES TOTAL
3.80 (+/-) = AREA OF CREDITED RETENTION ON N.T.A.
0.42 (+/-) = AREA OF CREDITED REFORESTATION ON N.T.A.
0.57 (+/-) = AREA OF NON-CREDITED RETENTION IN 100-YR FP

2.59± ACRES CREDITED RETENTION ON N.T.A.

3.80± ACRES NON-CREDITED RETENTION ON N.T.A. (INCLUDES PORTION ON SHEET 72)

0.57± ACRES NON-CREDITED RETENTION IN 100-YR FP (INCLUDES PORTION ON SHEET 72)

MATCHLINE FOR CONTINUATION SEE SHEET 72

MATCHLINE FOR CONTINUATION SEE SHEET 68

MATCHLINE FOR CONTINUATION SEE SHEET 70

THREE GRACES ROAD (50' PUBLIC ACCESS STREET - 28' PAVING)

WESTMOUNT PARKWAY (MINOR COLLECTOR - PAVING VARIES)

CAREY COURT (50' PUBLIC ACCESS STREET - 24' PAVING)

RIDLEY LANE (50' PUBLIC ACCESS STREET - 24' PAVING)

PROPERTY OF THE CITY OF ELLICOTT CITY (OPEN SPACE LOT 274)

NON-BUILDABLE BULK PARCEL 'E' 46.91 Ac.

NON-BUILDABLE BULK PARCEL 'F' 1.46 Ac.

OS LOT 269 4.46 Ac.

OS LOT 278 1.07 Ac.

OS LOT 279 0.88 Ac.

OS LOT 280 0.08 Ac.

OS LOT 288 0.11 Ac.

OS LOT 289 0.53 Ac.

OS LOT 290 0.08 Ac.

OS LOT 291 1.96 Ac.

OS LOT 267 1.37 Ac.

OS LOT 273 0.51 Ac.

OS LOT 274 0.09 Ac.

OS LOT 268 3.90 Ac.

LOTS 187 - 213, 234 - 240, 253

0.01± ACRES CREDITED RETENTION ON N.T.A.

0.27± ACRES CREDITED REFORESTATION ON N.T.A.

0.01± ACRES CREDITED REFORESTATION ON N.T.A.

43.18± ACRES CLEARING ON N.T.A. (INCLUDES PORTION ON SHEETS 70, 73 & 72)

12.51± ACRES CLEARING ON N.T.A. (INCLUDES PORTION ON SHEETS 68)

1.01± ACRES CLEARING ON N.T.A.

3.35± ACRES CLEARING ON N.T.A. (INCLUDES PORTION ON SHEETS 68)

1.14± ACRES CLEARING ON N.T.A. (INCLUDES PORTION ON SHEETS 68) & PREVIOUSLY ACCOUNTED FOR IN PHASE 2 PLANS PER F-16-081)

0.04± ACRES CLEARING ON N.T.A.

0.65± ACRES CLEARING ON N.T.A. (INCLUDES PORTION ON SHEETS 68 & PREVIOUSLY ACCOUNTED FOR IN PHASE 2 PLANS PER F-16-081)

0.38± ACRES FOREST RETENTION ON N.T.A. PER L. 13236 F. 094

0.57± ACRES CREDITED RETENTION ON N.T.A. (INCLUDES PORTION ON SHEET 68)

11.25± ACRES CREDITED RETENTION ON N.T.A. (INCLUDES PORTION ON SHEET 70)

PART OF FOREST CONSERVATION EASEMENT NO. 17
(SEE SHEET 68 FOR FOREST CONSERVATION AREA TOTALS)

FOREST CONSERVATION EASEMENT NO. 20
11.41 (+/-) ACRES TOTAL
11.25 (+/-) = AREA OF CREDITED RETENTION ON N.T.A.
0.22 (+/-) = AREA OF CREDITED REFORESTATION ON N.T.A.

E 1,347,150
N 584,600

LEGEND

- EXISTING STRUCTURE
- PROPOSED BUILDINGS
- EXISTING CONTOURS
- PROPOSED CONTOURS
- FOREST CONSERVATION SIGNS
- SLOPES 15- =25%
- SLOPES 25% AND STEEPER
- FCE — FOREST CONSERVATION EASEMENT
- TPF — TREE PROTECTION FENCE
- PROPOSED SPECIMEN TREE (SEE LANDSCAPE SHEET 15 FOR PLANT LIST)
- FIELD SURVEYED SPECIMEN, CHAMPION HISTORIC TREE WITH CRITICAL ROOT ZONE- TO BE SAVED
- FIELD SURVEYED SPECIMEN, CHAMPION HISTORIC TREE WITH CRITICAL ROOT ZONE- PROPOSED FOR REMOVAL
- ChC3 — SOIL DELINEATION
- ERODABLE SOILS
- FP — FLOODPLAIN (1.72 Ac.) (FP)
- WETLAND (1.83 Ac.)
- WB — WETLAND BUFFER (4.56 Ac.)
- STREAM CENTERLINE
- SB — STREAM BUFFER (6.09 Ac.)
- LOD — LIMITS OF DISTURBANCE
- FOREST STAND DELINEATION TREELINE
- EXISTING SEWER EASEMENT
- FOREST CLEARING (*)
- FOREST CLEARING IN PHASE 2 PLANS PER F-16-046 (*)
- (CREDITED) REFORESTATION- PORTION ON N.T.A.
- (CREDITED) REFORESTATION- PORTION IN 100-YR FP
- (CREDITED) FOREST RETENTION- PORTION ON N.T.A.
- (NON-CREDITED) FOREST RETENTION- PORTION IN 100-YR FP
- FOREST RETENTION ON N.T.A. (LESS THAN 35')
- FOREST CONSERVATION AREA (**)

(N.T.A.) = NET TRACT AREA
(FP) = FLOODPLAIN
FOR CLARITY, THE PATTERNS AS INDICATED BELOW ARE NOT SHOWN ON THE SPECIFIED SHEETS, WHICH WOULD MAKE THE PLANS ILLEGIBLE:
(*) THESE PATTERNS & LINE-TYPES ARE ONLY SHOWN ON SHEET 68-72.
(**) THESE PATTERNS & LINE-TYPES ARE ONLY SHOWN ON SHEET 74.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.24.19

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

STATE of MARYLAND
Michael B. Tran
REGISTERED
933
LANDSCAPE ARCHITECT
1-09-19

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3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY: KAB
DRAWN BY: KAB
CHECKED BY: MBT

DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

FOREST CONSERVATION PLAN

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 50'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	69 OF 72

F 17-001

PART OF FOREST CONSERVATION EASEMENT NO. 21
(SEE SHEET 69 FOR FOREST CONSERVATION AREA TOTALS)

MATCHLINE FOR CONTINUATION SEE SHEET 72

3.80± ACRES CREDITED RETENTION ON N.T.A. (INCLUDES PORTION ON SHEET 73 & 72)

PART OF FOREST CONSERVATION EASEMENT NO. 20
(SEE SHEET 69 FOR FOREST CONSERVATION AREA TOTALS)

MATCHLINE FOR CONTINUATION SEE SHEET 69

MATCHLINE FOR CONTINUATION SEE SHEET 73

MATCHLINE FOR CONTINUATION SEE SHEET 71

LEGEND

- EXISTING STRUCTURE
- PROPOSED BUILDINGS
- EXISTING CONTOURS
- PROPOSED CONTOURS
- FOREST CONSERVATION SIGNS
- SLOPES 15- =25%
- SLOPES 25% AND STEEPER
- FOREST CONSERVATION EASEMENT
- FCE — TREE PROTECTION FENCE — TPF
- PROPOSED SPECIMEN TREE (SEE LANDSCAPE SHEET 15 FOR PLANT LIST)
- FIELD SURVEYED SPECIMEN, CHAMPION HISTORIC TREE WITH CRITICAL ROOT ZONE- TO BE SAVED
- FIELD SURVEYED SPECIMEN, CHAMPION HISTORIC TREE WITH CRITICAL ROOT ZONE- PROPOSED FOR REMOVAL
- ChC3 — SOIL DELINEATION
- ERODABLE SOILS
- FP — FLOODPLAIN (1.72 Ac.) (FP)
- WETLAND (1.83 Ac.)
- WB — WETLAND BUFFER (4.56 Ac.)
- STREAM CENTERLINE
- SB — STREAM BUFFER (6.04 Ac.)
- LIMITS OF DISTURBANCE
- LSD — FOREST STAND DELINEATION TREELINE
- EXISTING SEWER EASEMENT
- FOREST CLEARING (*)
- FOREST CLEARING IN PHASE 2 PLANS PER F-16-046 (*)
- (CREDITED) REFORESTATION- PORTION ON N.T.A.
- (CREDITED) REFORESTATION- PORTION IN 100-YR FP
- (CREDITED) FOREST RETENTION- PORTION ON N.T.A.
- (NON-CREDITED) FOREST RETENTION ON N.T.A. (LESS THAN 35')
- FOREST RETENTION ON N.T.A. (LESS THAN 35')
- FOREST CONSERVATION AREA (**)

(N.T.A.) = NET TRACT AREA
(FP) = FLOODPLAIN
FOR CLARITY, THE PATTERNS AS INDICATED BELOW ARE NOT SHOWN ON THE SPECIFIED SHEETS, WHICH WOULD MAKE THE PLANS ILLEGIBLE.
(*) THESE PATTERNS & LINE-TYPES ARE ONLY SHOWN ON SHEET 68-72.
(**) THESE PATTERNS & LINE-TYPES ARE ONLY SHOWN ON SHEET 74.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 6.27.19
Chief, Development Engineering Division — Date 6.24.19

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

STATE OF MARYLAND
Michael B. Tran
REG. NO. 933
LANDSCAPE ARCHITECT
1-02-19

PREPARED FOR:
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GLW

DESIGNED BY: KAB
DRAWN BY: KAB

BY	APP'R.

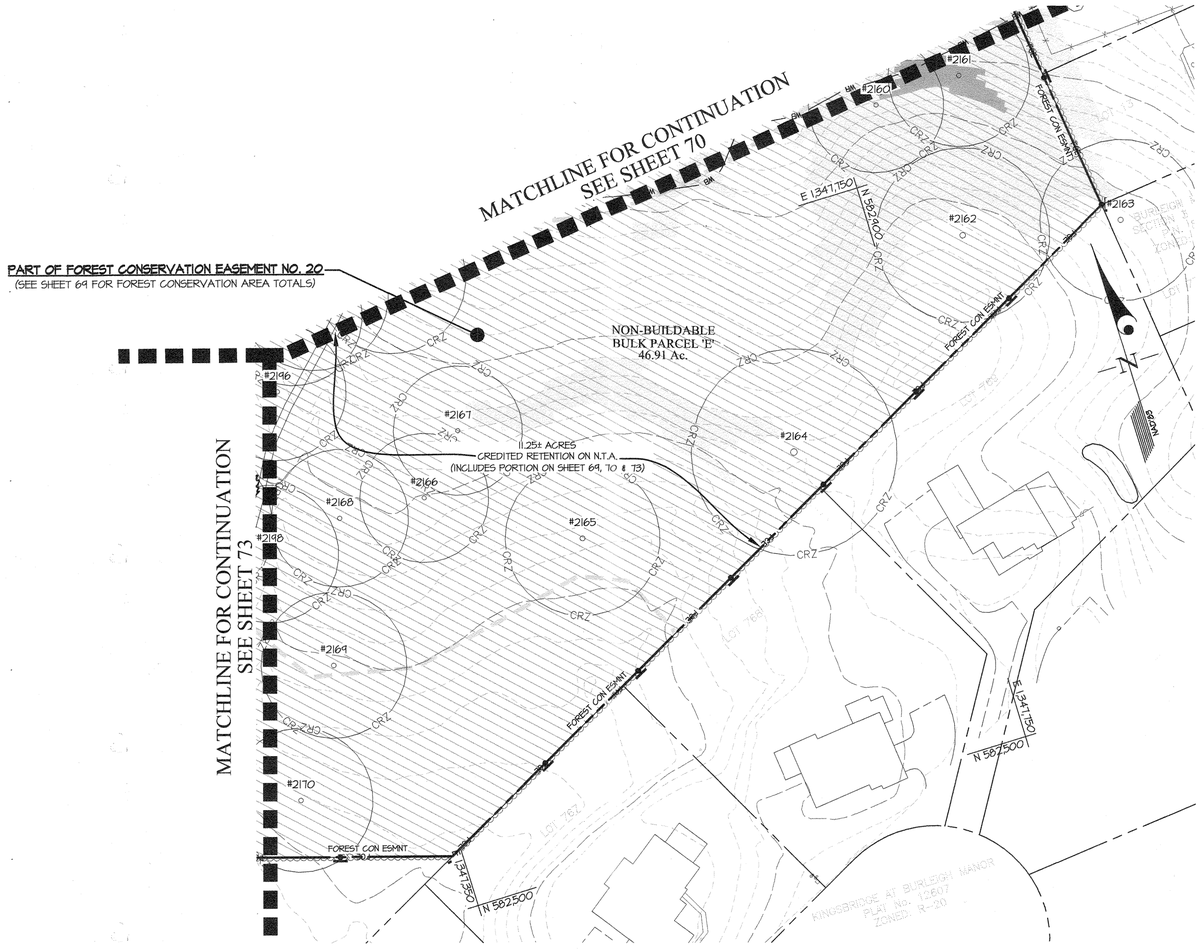
FOREST CONSERVATION PLAN

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294
AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

HOWARD COUNTY, MARYLAND
ELECTION DISTRICT No. 2

SCALE	ZONING	G. L. W. FILE
1" = 50'	R-ED	13-01
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	70 OF

F



LEGEND

- EXISTING STRUCTURE
- PROPOSED BUILDINGS
- EXISTING CONTOURS
- PROPOSED CONTOURS
- FOREST CONSERVATION SIGNS
- SLOPES 15- =25%
- SLOPES 25% AND STEEPER
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- TPF — TREE PROTECTION FENCE
- PROPOSED SPECIMEN TREE (SEE LANDSCAPE SHEET 15 FOR PLANT LIST)
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- SB — STREAM BUFFER (6.09 Ac.)
- LOD — LIMITS OF DISTURBANCE
- FOREST STAND DELINEATION TREELINE
- EXISTING SEWER EASEMENT
- FOREST CLEARING (*)
- FOREST CLEARING IN PHASE 2 PLANS PER F-16-046 (*)
- (CREDITED) REFORESTATION- PORTION ON N.T.A.
- (CREDITED) REFORESTATION- PORTION IN 100-YR FP
- (CREDITED) FOREST RETENTION- PORTION ON N.T.A.
- (NON-CREDITED) FOREST RETENTION- PORTION IN 100-YR FP
- FOREST RETENTION ON N.T.A. (LESS THAN 35')
- FOREST CONSERVATION AREA (**)

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APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.24.19

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

STATE OF MARYLAND
Michael B. Tran
REGISTERED LANDSCAPE ARCHITECT
933
1-03-19

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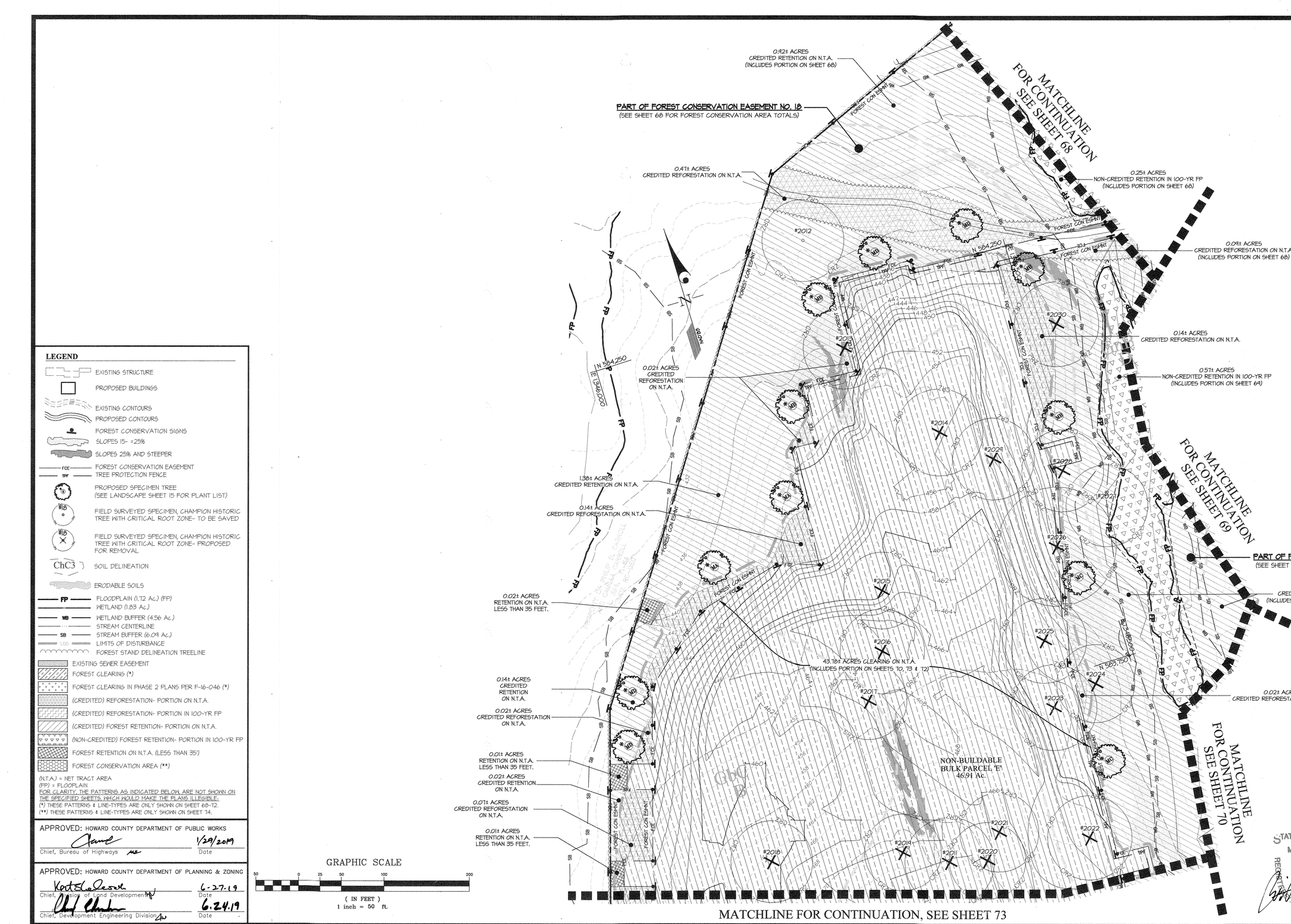
FOREST CONSERVATION PLAN

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 50'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	71 OF 92

F 17-001



LEGEND

- EXISTING STRUCTURE
- PROPOSED BUILDINGS
- EXISTING CONTOURS
- PROPOSED CONTOURS
- FOREST CONSERVATION SIGNS
- SLOPES 15- =25%
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- (CREDITED) REFORESTATION- PORTION ON N.T.A.
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APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.24.19

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

MATCHLINE FOR CONTINUATION, SEE SHEET 73

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DESIGNED BY:	DATE	REVISION	BY	APP'R.
KAB				
DRAWN BY: KAB				
CHECKED BY: MBT				

PREPARED FOR:
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3500 MANOR LANE
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FOREST CONSERVATION PLAN

WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 50'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	72 OF 72

F 17-001

PART OF FOREST CONSERVATION EASEMENT NO. 18
(SEE SHEET 68 FOR FOREST CONSERVATION AREA TOTALS)

0.07± ACRES
CREDITED REFORESTATION ON N.T.A.
(INCLUDES PORTION ON SHEET 72)

MATCHLINE FOR CONTINUATION SEE SHEET 72

PART OF FOREST CONSERVATION EASEMENT NO. 21
(SEE SHEET 69 FOR FOREST CONSERVATION AREA TOTALS)

3.80± ACRES
CREDITED RETENTION ON N.T.A.
(INCLUDES PORTION ON SHEET 69, 70 & 72)

0.16± ACRES
CREDITED REFORESTATION ON N.T.A.

0.09± ACRES
CREDITED RETENTION ON N.T.A.

0.02± ACRES
RETENTION ON N.T.A. LESS THAN 35 FEET.

0.41± ACRES
CREDITED RETENTION ON N.T.A.

MATCHLINE FOR CONTINUATION SEE SHEET 70

43.78± ACRES CLEARING ON N.T.A.
(INCLUDES PORTION ON SHEETS 70, 73 & 72)

NON-BUILDABLE BULK PARCEL 'E'
46.91 Ac.

0.22± ACRES
CREDITED REFORESTATION ON N.T.A.

NON-BUILDABLE BULK PARCEL 'F'

0.36± ACRES
CREDITED REFORESTATION ON N.T.A.

FOREST CONSERVATION EASEMENT NO. 22
0.36 (+/-) ACRES TOTAL
0.36 (+/-) = AREA OF CREDITED REFORESTATION ON N.T.A.

0.19± ACRES
CREDITED REFORESTATION ON N.T.A.

11.25± ACRES
CREDITED RETENTION ON N.T.A.
(INCLUDES PORTION ON SHEET 69-71)

PART OF FOREST CONSERVATION EASEMENT NO. 20
(SEE SHEET 69 FOR FOREST CONSERVATION AREA TOTALS)

MATCHLINE FOR CONTINUATION SEE SHEET 71

N 583250 E 1346500
N 582750 E 1346750

LEGEND

- EXISTING STRUCTURE
- PROPOSED BUILDINGS
- EXISTING CONTOURS
- PROPOSED CONTOURS
- FOREST CONSERVATION SIGNS
- SLOPES 15- =25%
- SLOPES 25% AND STEEPER
- FCE — FOREST CONSERVATION EASEMENT
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- PROPOSED SPECIMEN TREE (SEE LANDSCAPE SHEET 15 FOR PLANT LIST)
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APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 6.27.19
Chief, Development Engineering Division — Date 6.24.19

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

STATE OF MARYLAND
Michael B. Tran
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LANDSCAPE ARCHITECT
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FOREST CONSERVATION PLAN

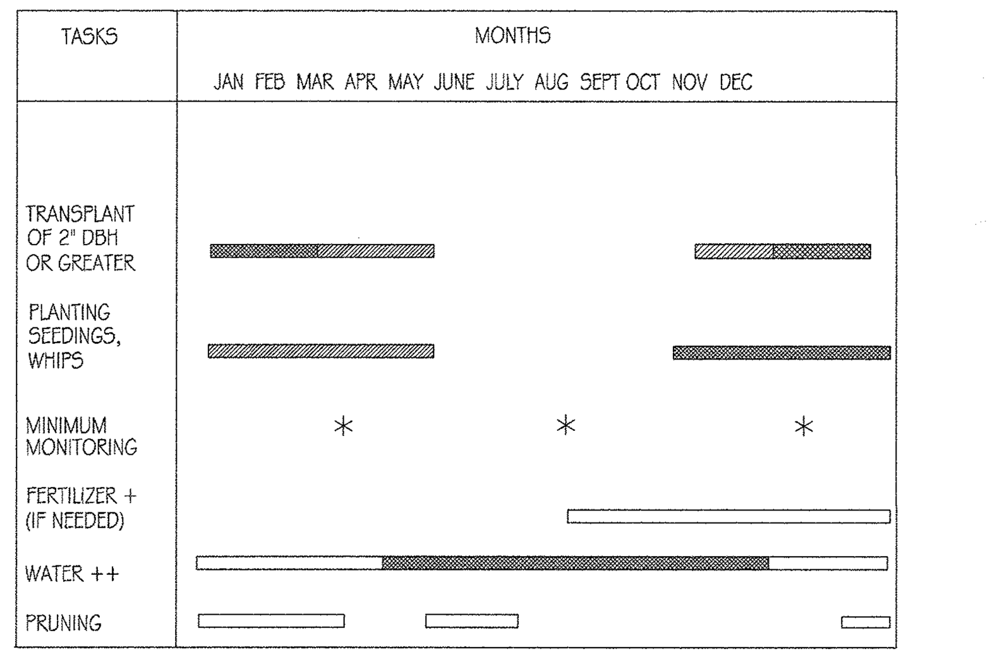
WESTMOUNT - PHASE 3
LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 50'	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	73 OF 92

F 17-001

TREE PLANTING AND MAINTENANCE CALENDAR



KEY

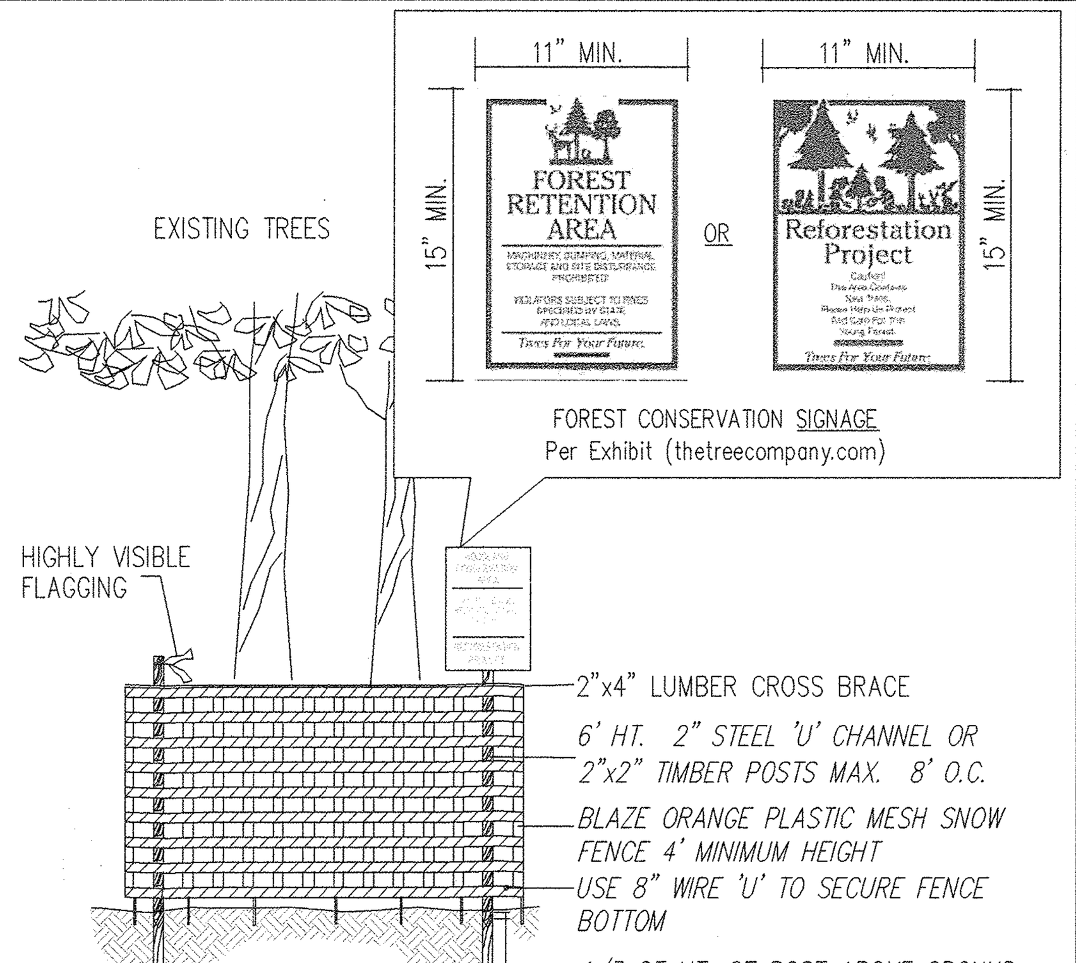
- * ACTIVITIES DURING THESE MONTHS ARE DEPENDENT UPON GROUND CONDITIONS
- GREATLY RECOMMENDED
- RECOMMENDED WITH ADDITIONAL CARE
- RECOMMENDED
- \+ DEPENDANT UPON SITE CONDITIONS
- ++ DEPENDANT UPON SITE CONDITIONS; WEEKLY WATERING IS GREATLY RECOMMENDED FROM MAY THROUGH OCTOBER UNLESS WEEKLY RAINFALL EQUALS 1"

NOTE:
The planting and care of trees is most successful when coordinated with the local climatic conditions. This calendar summarizes some of the recommended time frames for basic reforestation and stress reduction activities.

SOURCE: adapted from the Maryland State FOREST CONSERVATION MANUAL

TREE PROTECTION FENCE

NOT TO SCALE



TREE PROTECTION FENCING

1. FOREST PROTECTION DEVICE ONLY.
2. AVOID ROOT DAMAGE.
3. DEVICE MUST BE MAINTAINED THROUGHOUT CONSTRUCTION.

adapted from the Maryland State FOREST CONSERVATION MANUAL

NOTES:

1. THE TREE PROTECTION FENCING SHOWN ON THESE PLANS IS TEMPORARY AND SHALL REMAIN IN PLACE DURING CONSTRUCTION ACTIVITY, BUT THE FOREST CONSERVATION SIGNAGE IS PERMANENT AND SHALL REMAIN IN PLACE AROUND THE FOREST CONSERVATION EASEMENTS AFTER THE REMOVAL OF THE TREE PROTECTION FENCING.
2. FOREST CONSERVATION SIGNAGE SHALL BE INSTALLED ALONG THE PERIMETER OF THE CONSERVATION EASEMENT AT 50' TO 100' APART AND AT ALL CORNERS WHERE THE EASEMENT CHANGES DIRECTION.
3. ATTACHMENT OF SIGNS TO TREES IS PROHIBITED.

MAPPED SOILS

SYMBOLS	SOIL NAME	SLOPE	K-FACTOR	COMMENT
GbB	Gladstone Loam	3-8%	0.28	------
GbC	Ladstone Loam	8-15%	0.28	------
GfB	Gladstone-Urban Land Complex	0-8%	0.28	------
GmB	Glenville Silt Loam	3-8%	0.28	Baile inclusions/ 5%
GnB	Glenville-Baile Silt Loams	0-8%	0.28	Baile inclusions/ 10%
GuB	Glenville -Urban Land Udorthents Complex	25-45%	0.28	------
Ha	Hatboro-Codorus Silt Loams	0-3%	0.43	Hydric
MaD	Manor Loam	15-25%	0.28	------

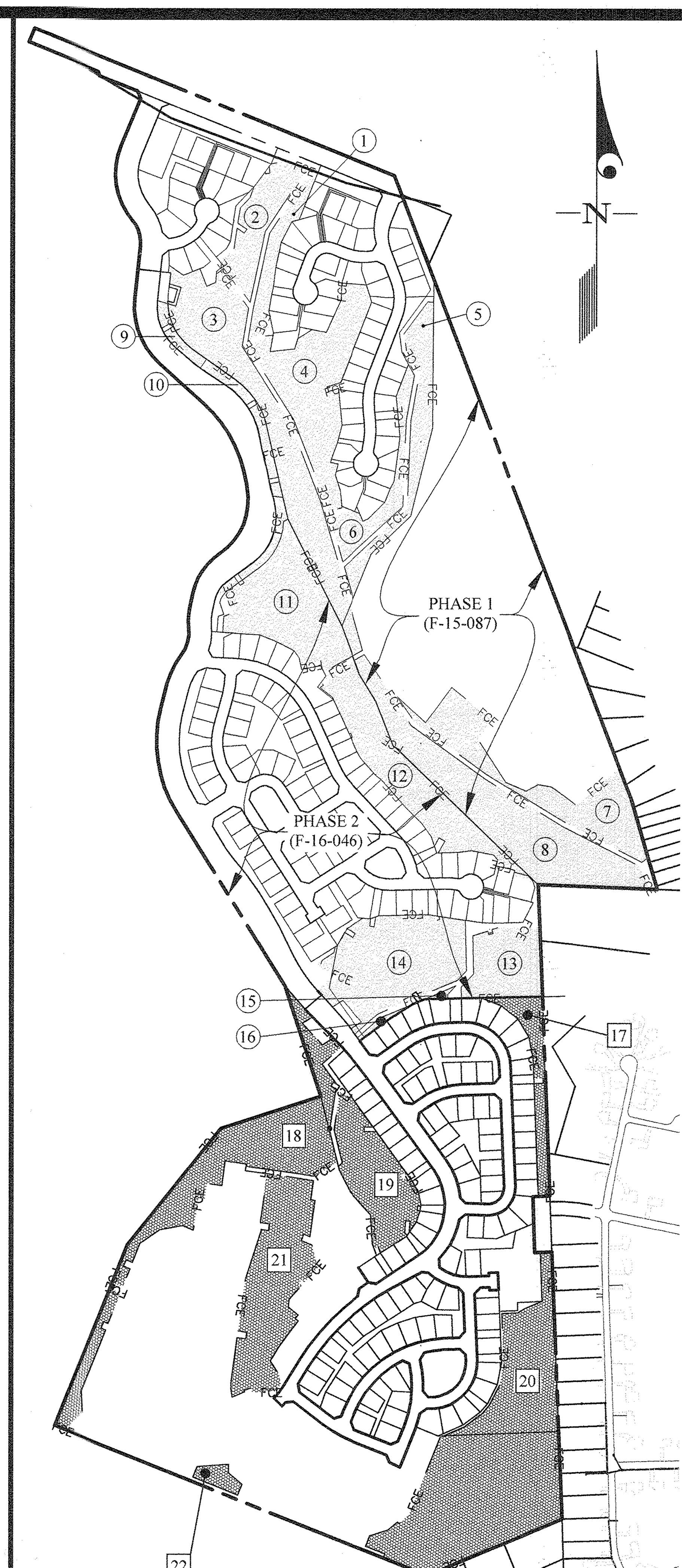
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6-24-19



FCE LOCATION DIAGRAM
SCALE: 1" = 500'

LEGEND

- EASEMENT NUMBER (SEE CHART THIS SHEET)
- (30) EXISTING FOREST CONSERVATION EASEMENT (circled numbers)
- [31] PROPOSED FOREST CONSERVATION EASEMENT (boxed numbers)

SPECIMEN TREES NOTE:

1. WAIVER PETITION (WP-15038, SECTION 16.1205(A)(7), DATED OCTOBER 30, 2014)) CONDITION OF APPROVAL:
"AS MITIGATION FOR THE REQUESTED REMOVAL OF FIFTY-SEVEN (57) SPECIMEN TREES LOCATED WITHIN THIS SITE, THE DEVELOPER IS REQUIRED TO USE 2" CALIPER PLANT MATERIALS FOR THE REQUIRED PLANTINGS WITHIN THE PROPOSED REFORESTATION PLANTING AREAS AT A MINIMUM PLANTED ADJACENT TO ALL RESIDENTIAL LOTS THROUGHOUT THE SUBDIVISION. A FINAL DETERMINATION OF THE PLANT MATERIAL SIZE AND TOTAL NUMBER OF PLANTS WILL BE REVIEWED AND FINALIZED AT THE FINAL PLAN. IF DESIGN CHANGES ARE MADE AT THE FINAL PLAN STAGE AND THE REFORESTATION PLANTING AREAS ARE REDUCED OR ELIMINATED, THEN THE DEVELOPER SHALL PLANT AN EQUIVALENT NUMBER OF SHADE TREES WITHIN THE RESIDENTIAL AND OPEN SPACE LOTS AND ADJACENT TO PRIORITY RETENTION AREAS. THESE FIFTY-SEVEN (57) SHADE TREES (OR EQUIVALENT) WILL BE IN ADDITION TO AND AN ENHANCEMENT OF ANY REQUIRED PERIMETER LANDSCAPING AND SHALL BE BONDED."
2. WAIVER PETITION (WP-15038) ADDRESSES CLEARING OF SPECIMEN TREES SHOWN HEREIN AND SPECIMEN TREES CLEARED PER F-15-087 AND F-16-046, WITH A TOTAL SPECIMEN TREE MITIGATION REQUIREMENT OF 61 (2" CALIPER) TREES. THE MITIGATION TREES WILL BE PLANTED WITH THESE FINAL PLANS.
3. SEE LANDSCAPE PLAN SHEETS 12-15 FOR SPECIMEN TREE MITIGATION PLANTING.

SPECIMEN/SIGNIFICANT TREE LIST

TAG #	COMMON NAME	SCIENTIFIC NAME	DBH*	VIGOR**	NOTES	TO BE REMOVED (TBR)	PHASE
2001	Tulip Poplar	Liriodendron tulipifera	30	good		X	3
2002	Tulip Poplar	Liriodendron tulipifera	31.5	good		X	3
2003	Tulip Poplar	Liriodendron tulipifera	30.5	good		X	3
2004	Tulip Poplar	Liriodendron tulipifera	30.5	good		X	3
2005	Tulip Poplar	Liriodendron tulipifera	34.5	good		X	3
2006	Tulip Poplar	Liriodendron tulipifera	31	good		X	3
2007	Tulip Poplar	Liriodendron tulipifera	32	good		X	3
2008	Tulip Poplar	Liriodendron tulipifera	31	good		X	3
2009	Tulip Poplar	Liriodendron tulipifera	31	good		X	3
2010	Tulip Poplar	Liriodendron tulipifera	33	fair		X	3
2011	Tulip Poplar	Liriodendron tulipifera	35	fair	poision ivy	X	3
2012	Tulip Poplar	Liriodendron tulipifera	32	good			3
2013	Tulip Poplar	Liriodendron tulipifera	32	good		X	3
2014	Tulip Poplar	Liriodendron tulipifera	34	fair	poision ivy	X	3
2015	Tulip Poplar	Liriodendron tulipifera	30	good		X	3
2016	Tulip Poplar	Liriodendron tulipifera	33	fair	poision ivy	X	3
2017	Tulip Poplar	Liriodendron tulipifera	30	good		X	3
2018	Tulip Poplar	Liriodendron tulipifera	32	good		X	3
2019	Tulip Poplar	Liriodendron tulipifera	30	fair	poision ivy	X	3
2020	Tulip Poplar	Liriodendron tulipifera	30	good		X	3
2021	Tulip Poplar	Liriodendron tulipifera	31	good		X	3
2022	Tulip Poplar	Liriodendron tulipifera	33	good		X	3
2023	Mockernut Hickory	Carya alba	33.5	fair	poision ivy	X	3
2024	Tulip Poplar	Liriodendron tulipifera	30.4	good		X	3
2025	Tulip Poplar	Liriodendron tulipifera	33	good		X	3
2026	Tulip Poplar	Liriodendron tulipifera	46.5	good	double at 15'	X	3
2027	Tulip Poplar	Liriodendron tulipifera	32	good			3
2028	Tulip Poplar	Liriodendron tulipifera	32	good		X	3
2029	Tulip Poplar	Liriodendron tulipifera	32	good		X	3
2030	Tulip Poplar	Liriodendron tulipifera	33	fair	2/3 of a triple	X	3
2031	Tulip Poplar	Liriodendron tulipifera	32	good		X	3
2032	Tulip Poplar	Liriodendron tulipifera	32	good		X	3
2033	Pin Oak	Quercus palustris	35	good			1
2034	Northern Red Oak	Quercus rubra	33	good			1
2035	Pin Oak	Quercus palustris	34	fair	poision ivy		1
2036	Pin Oak	Quercus palustris	33.5	fair	dead tree leaning on		1
2037	Green Ash	Fraxinus pennsylvanica	30.5	fair	poision ivy		1
2105	Pin Oak	Quercus palustris	50	good			1
2106	American Elm	Ulmus americana	33.5	good		X	2
2107	Pin Oak	Quercus palustris	36.5	fair	some dead branches		1
2108	American Elm	Ulmus americana	33.5	poor			1
2109	Pin Oak	Quercus palustris	35	poor	mostly dead	X	1
2110	Pin Oak	Quercus palustris	37	fair	mostly dead	X	1
2111	Box Elder	Acer negundo	31.5	fair	many dead branches		1
2112	Box Elder	Acer negundo	32.5	good	broken leader		1
2113	Pin Oak	Quercus palustris	35.5	good			1
2114	Pin Oak	Quercus palustris	44.5	fair	some broken branches		1
2115	American Elm	Liriodendron tulipifera	31.5	good			1
2116	Northern Red Oak	Quercus rubra	52	good	double at 12'	X	3
2117	Mockernut Hickory	Carya alba	32.5	good			3
2118	Tulip Poplar	Liriodendron tulipifera	33.5	good			3
2119	Black Oak	Quercus veluntina	35	good			3
2120	Tulip Poplar	Liriodendron tulipifera	30.5	good			3
2121	Tulip Poplar	Liriodendron tulipifera	33	poor	trunk rot	X	3
2122	Tulip Poplar	Liriodendron tulipifera	30.5	good		X	3
2123	Tulip Poplar	Liriodendron tulipifera	37	good		X	2
2124	Tulip Poplar	Liriodendron tulipifera	34	good		X	2
2125	Tulip Poplar	Liriodendron tulipifera	32.5	good	*		2
2126	Tulip Poplar	Liriodendron tulipifera	40	good			2
2127	Tulip Poplar	Liriodendron tulipifera	32	good			2
2128	Pin Oak	Quercus palustris	35	fair	dead branches		2
2129	Tulip Poplar	Liriodendron tulipifera	40	good			2
2130	Tulip Poplar	Liriodendron tulipifera	32.5	good	*		2
2131	Tulip Poplar	Liriodendron tulipifera	31.5	fair	*	X	2
2132	Tulip Poplar	Liriodendron tulipifera	37	fair	some trunk rot	X	2
2133	Tulip Poplar	Liriodendron tulipifera	30	good			2
2134	Tulip Poplar	Liriodendron tulipifera	42	good	double at breast height		2
2135	Tulip Poplar	Liriodendron tulipifera	30.5	good		X	2
2136	Tulip Poplar	Liriodendron tulipifera	30	good			2
2137	Tulip Poplar	Liriodendron tulipifera	34	good			2
2138	Tulip Poplar	Liriodendron tulipifera	30	good			2
2139	Tulip Poplar	Liriodendron tulipifera	40	good	double at breast height		2
2140	Northern Red Oak	Quercus rubra	44	good	double at 7'	X	3
2141	Northern Red Oak	Quercus rubra	31	good			3
2142	Tulip Poplar	Liriodendron tulipifera	32	good			3
2143	Tulip Poplar	Liriodendron tulipifera	30	fair	trunk rot		3
2144	Tulip Poplar	Liriodendron tulipifera	32.5	fair	poison ivy vines		3
2145	Tulip Poplar	Liriodendron tulipifera	37	good			3
2146	Tulip Poplar	Liriodendron tulipifera	36	good			3
2147	Northern Red Oak	Quercus rubra	34	good			3
2148	Tulip Poplar	Liriodendron tulipifera	34	good			3
2149	Northern Red Oak	Quercus rubra	40	good	double at 20'		3
2150	Northern Red Oak	Quercus rubra	31.5	fair	poison ivy vines		3
2151	Tulip Poplar	Liriodendron tulipifera	36	good			3
2152	Black Oak	Quercus veluntina	31.5	good			3
2153	Black Oak	Quercus veluntina	33	good			3
2154	Tulip Poplar	Liriodendron tulipifera	30	good			3
2155	Northern Red Oak	Quercus rubra	30	good			3
2156	Northern Red Oak	Quercus rubra	38.5	good	double at 15'		3
2157	Tulip Poplar	Liriodendron tulipifera	31.5	good			3
2158	Black Oak	Quercus veluntina	31.5	good			3
2159	Tulip Poplar	Liriodendron tulipifera	36	good			3
2160	Tulip Poplar	Liriodendron tulipifera	31.5	good			3
2161	Tulip Poplar	Liriodendron tulipifera	33	good			3
2162	Northern Red Oak	Quercus rubra	40.5	fair	broken branches, double at 10'		3
2163	White Oak	Quercus alba	37.5	good			3
2164	White Oak	Quercus alba	48	fair	broken leader		3
2165	Mockernut Hickory	Carya alba	36	good	double at 10'		3
2166	Tulip Poplar	Liriodendron tulipifera	30	good			3
2167	Tulip Poplar	Liriodendron tulipifera	30	good			3
2168	Tulip Poplar	Liriodendron tulipifera	32	good			3
2169	Tulip Poplar	Liriodendron tulipifera	34	good			3
2170	Tulip Poplar	Liriodendron tulipifera	33.5	good			3
2171	Tulip Poplar	Liriodendron tulipifera	39	fair	*	X	3
2172	Northern Red Oak	Quercus rubra	38	fair	dead branches	X	3
2173	Tulip Poplar	Liriodendron tulipifera	32.5	fair	peeling bark	X	3
2174	Tulip Poplar	Liriodendron tulipifera	34	good		X	3
2175	Tulip Poplar	Liriodendron tulipifera	31	good		X	3
2176	Red Maple	Acer rubrum	32	fair	poison ivy vines/grape vines		3
2177	Red Maple	Acer rubum	32	fair	grape vine		3
2178	Pin Oak	Quercus palustris	35.5	fair	some dead branches	X	2
2179	Tulip Poplar	Liriodendron tulipifera	34.5	good		X	2
2180	Northern Red Oak	Quercus rubra	32	good		X	3
2181	Tulip Poplar	Liriodendron tulipifera	31	good		X	3
2182	Tulip Poplar	Liriodendron tulipifera	40	fair	trunk rot	X	3
2183	Tulip Poplar	Liriodendron tulipifera	34	good		X	3
2184	Tulip Poplar	Liriodendron tulipifera	30	good		X	3
2185	Tulip Poplar	Liriodendron tulipifera	31	good			3
2186	Tulip Poplar	Liriodendron tulipifera	31.5	good		X	3
2187	Tulip Poplar	Liriodendron tulipifera	30.5	good		X	3
2188	Tulip Poplar	Liriodendron tulipifera	37	fair	buttress roots	X	3
2189	Tulip Poplar	Liriodendron tulipifera	30.5	good		X	3
2190	Tulip Poplar	Liriodendron tulipifera	49	good	double at 6'		3
2191	Tulip Poplar	Liriodendron tulipifera	42	good	double at 6'		3
2192	Tulip Poplar	Liriodendron tulipifera	44	good	triple at 15'		3
2193	Tulip Poplar	Liriodendron tulipifera	35	fair	trunk rot		3
2194	Tulip Poplar	Liriodendron tulipifera	32	good			3
2195	Tulip Poplar	Liriodendron tulipifera	35	good			3
2196	Tulip Poplar	Liriodendron tulipifera	32	fair	trunk rot, double at 15'		3
2197	Tulip Poplar	Liriodendron tulipifera	40	fair	double at 8'	X	3
2198	Tulip Poplar	Liriodendron tulipifera	32	poor	trunk rot/carpenter ants		3
2199	Tulip Poplar	Liriodendron tulipifera	31	good		X	3
2200	Tulip Poplar	Liriodendron tulipifera	32.5	good		X	3
2448	Pin Oak	Quercus palustris	32.5	fair	grape vines, some dead branches		1
2449	Pin Oak	Quercus palustris	36.5	fair	grape vines, some dead branches		1
2450	Pin Oak	Quercus palustris	38	good			1
2451	Pin Oak	Quercus palustris	33	fair	poison ivy vines, canker @ 10'		1
2452	Pin Oak	Quercus palustris	42	fair	poison ivy vines, some dead branches		1
2453	Pin Oak	Quercus palustris	31	good			1
2454	White Oak	Quercus alba	39	fair	some dead branches		1
2455	Pin Oak	Quercus palustris	30.5	fair	heavy vines, some dead branches		1

Information for Forest Conservation Calculations

1	Project Name:	WESTMOUNT (Phase-3)			
2	Land Use Category	Residential - Suburban			
	Forest Conservation Thresholds (Reforestaion / Afforestation) =	20 %		15 %	
3	Gross Site Area = (PH3 site: 42.10 ac.) + (PH4 site: 46.91) - disturbance in PH3 per F-16-046 (1.82 ac.) + Non-Credited OS Lot-4 (0.42 Ac, PN 21489)	3,816,221	s.f.	87.6084	ac.
4	Area within 100-yr floodplain, if any	75,033	s.f.	1.7225	ac.
5	Existing Forest on Net Tract Area	3,670,423	s.f.	84.2613	ac.
6	Forest Clearing on Net Tract Area	2,634,799	s.f.	60.4867	ac.

FOREST CONSERVATION WORKSHEET

Project Name: WESTMOUNT (Phase-3)

DPZ File Nunber:	F-17-001 (Phase-3)	Previous Phases 1 & 2 (F-15-087 & F-16-046)	Overall Total
1 Site Data	Acreage	Acreage	Acreage
A. Gross Site Area = *(PH3 site: 42.10 ac.) + (PH4 site: 46.91) - disturbance in PH3 per F-16-046 (1.82 ac.) + (Non-Credited OS Lot 2 : 0.42 Ac.)*	87.61	133.46	221.07
B. Area within 100-yr floodplain, if any	1.72	24.94	26.66
C. Net Tract Area	85.89	108.52	194.41
D. Land Use Category	Residential - Suburban	Same	Same
2 Input Data			
A. Net Tract Area	85.89	108.52	194.41
B. Reforestation Threshold (percent of net tract = 20 %)	17.18	21.70	38.88
C. Afforestation Threshold (percent of net tract = 15 %)	12.88	16.28	29.16
D Existing Forest on Net Tract Area	84.26	15.58	99.84
E. Forest Clearing on Net Tract Area	60.49	6.48	66.97
F. Forest Retention on Net Tract Area	23.77	9.10	32.87
3 Reforestation and/or Afforestation Calculations			
A. Net tract forest clearing above reforestation threshold, if applicable	60.49	0.00	60.96
B. Net tract forest clearing below reforestation threshold, if applicable	0.00	6.48	6.01
C. Planting up to afforestation threshold, if applicable	0.00	0.70	0.00
D. Reforestation planting required for clearing above threshold (3A x 0.25)	15.12	0.00	15.24
E. Reforestation planting required for clearing below threshold (3B x 2.0)	0.00	12.97	12.02
F. Reforestation planting required for clearing offsite (3F X 2.0)	0.00	0.00	0.00
G. Net tract forest retention above reforestation threshold (2F-2B, available credit, if applicable)	* 6.60	0.00	0.00
H. Total reforestation planting required (3C+3D+3E+3F - 3G)	* 8.52	13.67	27.26
4 Break Even Point (BEP) Calculations			
A. Maximum clearing allowed with no reforestation planting (2D-2B)/1.25	* 53.67	Not Applicable	48.77
B. Minimum net tract retention at BEP 0.20(2D-2B)+2B or 2D-4A	* 30.59	Not Applicable	51.07
5 Forest Conservation Required			
A. Forest Retention Area (2F)	**23.77**	**9.10**	**32.87**
B. Forest Planting Area (3H)	* **8.52**	**13.67**	**27.26**
C. Total minimum FCE required for retention and reforestation	**32.30**	**22.76**	**60.13**

* These Phase-3 values (with the asterisk) are based on an interim credit (item 3G) peculiar to Phase-3 work (and mass grading of Phase-4) only. For the future build-out of the project, use the calculations under the "Overall Total" column to verify & address any remaining forest conservation obligations for the entire project.

FOREST CONSERVATION - EASEMENT AREA TABULATIONS

Phase	File No.	Easement	Forest Retention on Net Tract (Credited)	Acerage of retention on Net Tract Area, less than 35' wide. (Non Credited) (3)	Forest Retention in Floodplain (Non-Credit)	Forest Planting on Net Tract	Forest Planting in Floodplain (Credited)	TOTAL
1	F-15-087	1	0.00	0.00	0.00	1.04	0.03	1.07
		2	0.08	0.00	0.24	0.88	0.62	1.82
		3	0.08	0.00	3.13	1.01	1.64	5.86
		4	1.47	0.00	0.96	1.95	0.10	4.48
		5	1.03	0.00	0.63	0.36	0.07	2.09
		6	0.78	0.00	0.03	0.58	0.00	1.39
		7	1.40	0.00	1.25	0.34	0.65	3.64
		8	0.31	0.00	4.92	0.53	0.27	6.03
SUB-TOTAL for FCE 1 thru 8			5.15	0.00	11.16	6.69	3.38	26.38
2	F-16-046	9	0.00	0.00	0.00	0.26	0.07	0.33
		10	0.05	0.00	0.02	0.42	0.06	0.55
		11 (4)	0.23	0.00	1.16	2.42	0.77	4.58
		12 (4)	0.00	0.00	0.79	2.63	0.48	3.90
		13	1.24	0.00	0.95	0.00	0.00	2.19
		14 (1)(4)	2.43	0.00	2.08	0.41	0.01	4.93
		15	0.00	0.00	0.00	0.06	0.00	0.06
		16	0.00	0.00	0.00	0.12	0.00	0.12
SUB-TOTAL for FCE 9 thru 16			3.95	0.00	5.00	6.32	1.39	16.66
3	F-17-001	17	1.32	0.01	0.00	0.02	0.00	1.35
		18	4.28	0.06	0.61	1.10	0.06	6.11
		19	2.67	0.00	0.00	0.36	0.00	3.03
		20	11.25	0.00	0.00	0.22	0.00	11.47
		21	3.80	0.00	0.57	0.42	0.00	4.79
		22 (2)	0.00	0.00	0.00	0.36	0.00	0.36
		O.S. Lot 2	0.38	0.00	0.00	0.00	0.00	0.38
SUB-TOTAL for FCE 17 - 22			23.70	0.07	1.18	2.48	0.06	27.49
			23.77 (3)					
OVERALL TOTAL			32.87 (3)		17.34	15.49	4.83	70.53

TOTAL FOREST CONSERVATION PLANTING PROVIDED for FCE-1 thru 8	10.07
TOTAL FOREST CONSERVATION PLANTING PROVIDED for FCE-9 thru 16	7.71
TOTAL FOREST CONSERVATION PLANTING PROVIDED for FCE-17 thru 22	2.54
TOTAL FOREST CONSERVATION PLANTING PROVIDED for FCE-1 thru 22	**20.32**

(1) Forest Conservation Easement No. 14 shall be planted during Phase 3, due to grading that is neccesary for the land bridge in previous Phase 2 (See F-16-046).
(2) Total Forest Retention Acreage includes areas of Forest Retention on the Net Tract Area, less than 35' wide.
(3) Revised per Lot line changes per F-16-046

FOREST CONSERVATION - TRACKING CHART

RETENTION / AFFORESTATION / REFORESTATION SUMMARY TABLE for WESTMOUNT

PHASE	GROSS SITE AREA (Ac.)	FLOODPLAIN AREA (Ac.)	NET TRACT AREA (Ac.)	EX. FOREST ON NET TRACT (Ac.)	FOREST CLEARED ON NET TRACT (Ac.)	FOREST RETAINED (Ac.)	PLANTING REQUIRED (Ac.)	PLANTING PROVIDED (Ac.)	Difference between On-Site planting provided & Planting Required (Planting & Retention)	COMMENTS
1	79.04	17.76	61.28	8.06	2.91	5.15	5.82	10.07	**4.25**	F-15-087 (FCE-1 thru 8)
(4) 2	54.42 (1)	7.18	47.24	7.52	3.57	3.95	7.15	7.71	**0.56**	F-16-046 (FCE-9 thru16)
Planting to fulfill obligation of (0.12 Ac.) forest clearing on adj. Centennial Manor O.S. Lot 101 for Sew .Esmt(F-16-046)							0.12	-	-0.12	F-16-046
3	87.61 (2)	1.72	85.89	84.26	60.49	23.77 (3)	8.52	2.54	-5.98	F-17-001 (FCE-17 thru 22)
4										Forest Conservation addressed with F-17-001 for the mass grading of Phase-4. Future build-out of Phase 4 to be under a new F-plan.
Total	**221.07**	**26.66**	**194.41**	**99.84**	**66.97**	**32.87**	**27.26** (5)	**20.32**	**-6.94** (5)	6.94 Ac. Offsite Forest Planting Required (See Forest Conservation Obligation Note No. 1)

(1) Phase-2: Gross Site Area (54.42 ac.) = Site area to be platted for Phase 2 (52.60 ac.) [+] Area to be graded for utilities in future Phase 3 (1.82 ac.).
(2) Phase-3: Gross Site Area (87.61 ac.) = Site area to be platted for Phase 3 (40.64 ac.) [+] Site area to be platted for future Phase 4 (48.37 ac.) [+] Open Space Lot 2 (0.42 Ac) [-] Area graded and cleared for utilities in Phase 3; per Phase 2 [F-16-046], (1.82 Ac.).
(3) Total Forest Retention Acreage includes areas of Forest Retention on the Net Tract Area, less than 35' wide.
(4) Revised per Lot Line changes per F-16-046.
(5) See Forect Conservation Worksheet above for Overall Planting Required.

Forest Conservation Plant Quantity Schedule

Forest Planting Location No.	FCE-17	FCE-18	FCE-19	FCE-20	FCE-21	FCE-22	Total
AREA TO BE PLANTED (in acres)	0.02	1.16	0.36	0.22	0.42	0.36	2.54
BASE QUANTITY OF 2" CAL. TREES REQUIRED (at 100/ac.)	2	116	36	22	42	36	254
CREDIT FOR LANDSCAPE TREES (minimum of 2 1/2" cal.)	0	0	0	7	0	0	7
REQUIRED TREE QUANTITY TO BE PLANTED (3 plant size options available)							
A. 2" caliper trees (at 100/acre)	2	116	36	15	42	36	247
B. 1" caliper trees (at 200/acre)	4	232	72	30	84	72	494
C. 36-48" whips with tree shelters (350/ac.)	7	406	126	53	147	126	865

Forest Conservation Plant List

Note: Select only ONE of the three plant size options below for each easement. Plant sizes quantities should correspond as shown. (No easement shall contain a mix of plant sizes)

Plant Name (*Botanical*/Common)	Plant Size Options	FCE-17	FCE-18	FCE-19	FCE-20	FCE-21	FCE-22	Total	
Acer rubrum / Red Maple *	2" cal.	2	22	6	1	8	6	45	2" cal.
	1" cal.	4	44	12	2	16	12	90	1" cal.
	Whips	7	77	21	4	28	21	158	Whips
Cercis canadensis / Eastern Redbud	2" cal.	0	22	6	2	8	8	46	2" cal.
	1" cal.	0	44	12	4	16	16	92	1" cal.
	Whips	0	77	21	7	28	28	161	Whips
Liriodendron tulipifera / Tulip Tree	2" cal.	0	0	6	4	8	0	18	2" cal.
	1" cal.	0	0	12	8	16	0	36	1" cal.
	Whips	0	0	21	14	28	0	63	Whips
Plantanus occidentalis / American Sycamore (Planetree) *	2" cal.	0	0	0	4	6	0	10	2" cal.
	1" cal.	0	0	0	8	12	0	20	1" cal.
	Whips	0	0	0	14	21	0	35	Whips
Quercus palustris / Pin Oak	2" cal.	0	24	0	4	6	8	42	2" cal.
	1" cal.	0	48	0	8	12	16	84	1" cal.
	Whips	0	84	0	14	21	28	147	Whips
Quercus rubra / Red Oak	2" cal.	0	24	8	0	6	8	46	2" cal.
	1" cal.	0	48	16	0	12	16	92	1" cal.
	Whips	0	84	28	0	21	28	161	Whips
Quercus bicolor / Swamp White Oak	2" cal.	0	24	10	0	0	6	40	2" cal.
	1" cal.	0	48	20	0	0	12	80	1" cal.
	Whips	0	84	35	0	0	21	140	Whips
TOTAL	2" cal.	2	116	36	15	42	36	247	2" cal.
	1" cal.	4	232	72	30	84	72	494	1" cal.
	Whips	7	406	126	53	147	126	865	Whips

FOREST CONSERVATION OBLIGATION & SURETY:

THE FOREST CONSERVATION OBLIGATION FOR THIS DEVELOPMENT AS CALCULATED IN THE FOREST CONSERVATION WORKSHEET IS 23.77± ACRES OF FOREST RETENTION AND 8.52± ACRES OF REFORESTATION PLANTING FOR TOTAL OF 32.30± ACRES OF FOREST CONSERVATION EASEMENT TO BE RECORDED.

PROPOSED METHOD OF SATISFYING THE ABOVE FOREST CONSERVATION ON-SITE:
RECORD SIX (6) FOREST CONSERVATION EASEMENTS (AND OPEN SPACE LOT 2) TOTALING 27.49± ACRES OF WHICH 26.31 ACRES ARE CREDITED AND CONTAINS 23.77± ACRES OF RETENTION ON THE NET TRACT AND 2.48± ACRES OF CREDITED REFORESTATION PLANTING ON THE NET TRACT AND 0.06± ACRES OF CREDITED REFORESTATION WITHIN THE FLOODPLAIN. THE NON-CREDITED PORTION OF THE FOREST CONSERVATION EASEMENTS CONTAIN 1.18± ACRES OF NON-CREDITED RETENTION WITHIN THE FLOODPLAIN.

THE FOREST CONSERVATION SURETY POSTED WITH THE DEVELOPER AGREEMENT IS $0.50/S.F OF THE REFORESTATION PLANTING. THE SURETY FOR THE ON-SITE REFORESTATION FOR THIS PHASE WOULD BE:

REFORESTATION PROVIDED: (2.54 Ac.) (43,560 SF/Ac.) ($0.50/SF)= $55,321.20
or $55,321.00 (rounded)

TOTAL SURETY: = $55,321.00

NOTE:
1. SEE FOREST CONSERVATION TRACKING CHART ON THIS SHEET, ~~BELOW~~ above. THERE IS A DEFICIT OF 6.94 ACRES OF REFORESTATION PLANTING THAT NEEDS TO BE PLANTED IN AN OFFSITE FOREST BANK. 5.94 ACRES WILL BE PLANTED IN AN OFFSITE BANK LOCATED AT FAIRLANE FARMS-PHASE 1 (SEE, F-15-054). THE REMAINING 1.00 ACRE OF REFORESTATION PLANTING WILL BE PLANTED IN AN OFFSITE BANK LOCATED AT CATTAIL CREEK (SEE, SDP-14-031).

FOREST CONSERVATION PLANTING NOTE:

1. THE QUANTITY SHOWN (IN THE CHART TO THE RIGHT) IS FOR PLANTING WITH:
   - 2" CAL. TREES (APPROXIMATE SPACING 15'X15') OR
   - 1" CAL. TREES (APPROXIMATE SPACING 15'X15') OR
   - WHIPS WITH THREE SHELTERS AT 350 PER ACRES (APPROXIMATE SPACING 11' X 11')
2. SUBSTITUTIONS AMONG THE ABOVE PLANTS ARE ALLOWED IF A PARTICULAR PLANT IS NOT AVAILABLE LOCALLY (IN THE MID-ATLANTIC AREA). ALL SUBSTITUTIONS MUST BE NATIVE SPECIES AND A MIX OF 5 SPECIES MUST BE PROVIDED WITHIN EACH EASEMENT AREA.
3. PLANT THE TREES SHOWN WITH AN ASTERISK (*) IN THE FLOODPLAIN PORTION OF THE FCE. (THEY MAY ALSO BE PLANTED OUTSIDE OF THE FLOODPLAIN). DO NOT PLANT THE TREES SHOWN WITHOUT AN ASTERISK (*) IN THE FLOODPLAIN.
4. SEE LANDSCAPE SHEET 12-15 FOR LANDSCAPE BUFFER TREES.

STATE OF MARYLAND — Michael B. Tran — REGISTERED LANDSCAPE ARCHITECT 933 — 1-03-19

GLW
PLANNING | ENGINEERING | SURVEYING
3909 NATIONAL DRIVE | SUITE 250 | BURTONSVILLE, MD 20866 | GLWPA.COM
PHONE: 301-421-4024 | BALT: 410-880-1820 | DC&VA: 301-989-2524 | FAX: 301-421-4186

DESIGNED BY: KAB
DRAWN BY: KAB
CHECKED BY: MBT

DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

FOREST CONSERVATION NOTES and DETAILS

WESTMOUNT - PHASE 3

LOTS 174-266, OPEN SPACE LOTS 267-294 AND NON-BUILDABLE BULK PARCELS E & F

A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS NOTED	R-ED	13-013
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	74 OF 92

F 17-001

L:\CADD\DRAWINGS\13013\plans by glw\roads-sd (ph3)\13013_67-74_FCP PLAN.dwg, PLOTTED: 1/3/2019 5:13 PM, LAST SAVED:1/3/2019 4:51 PM, PLOTTED BY: Keith Bennett

NOTES

GENERAL NOTES:

1. THIS BRIDGE HAS BEEN DESIGNED FOR GENERAL SITE CONDITIONS. THE PROJECT ENGINEER SHALL BE RESPONSIBLE FOR THE STRUCTURE'S SUITABILITY TO THE EXISTING SITE CONDITIONS AND FOR THE HYDRAULIC EVALUATION -- INCLUDING SCOUR AND CONFIRMATION OF SOIL CONDITIONS.

2. PRIOR TO CONSTRUCTION, CONTRACTOR MUST VERIFY ALL ELEVATIONS SHOWN THROUGH THE ENGINEER.

3. ONLY CONTECH ENGINEERED SOLUTIONS LLC, THE CON/SPAN® APPROVED PRECASTER IN MARYLAND MAY PROVIDE THE STRUCTURE DESIGNED IN ACCORDANCE WITH THESE PLANS.

4. THE USE OF ANOTHER PRECAST STRUCTURE WITH THE DESIGN ASSUMPTIONS USED FOR THE CON/SPAN® STRUCTURE MAY LEAD TO SERIOUS DESIGN ERRORS. USE OF ANY OTHER PRECAST STRUCTURE WITH THIS DESIGN AND DRAWINGS VOIDS ANY CERTIFICATION OF THIS DESIGN AND WARRANTY. CONTECH ENGINEERED SOLUTIONS LLC ASSUMES NO LIABILITY FOR DESIGN OF ANY ALTERNATE OR SIMILAR TYPE STRUCTURES.

DESIGN DATA

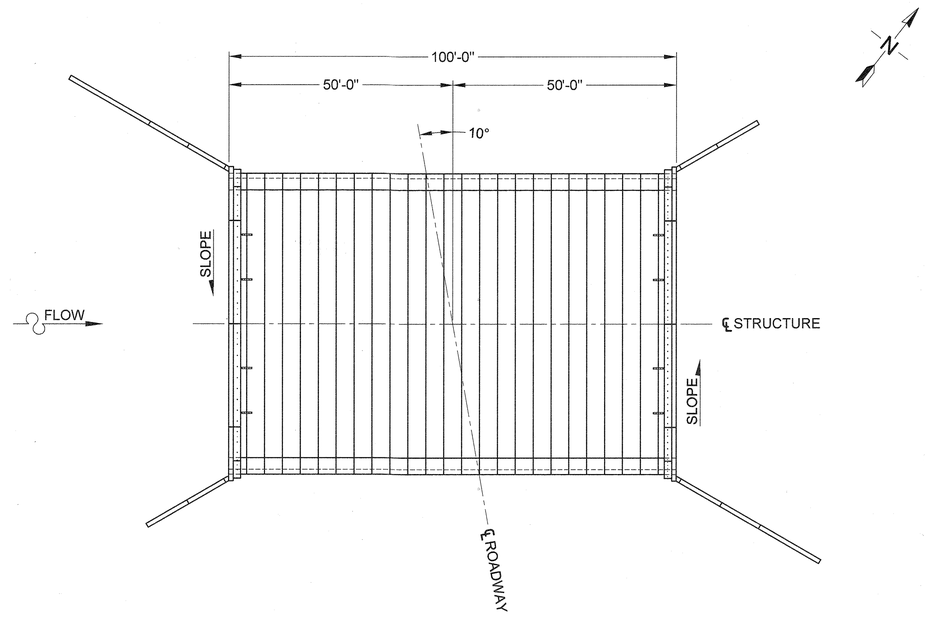
DESIGN LOADING:
BRIDGE UNITS: HL-93
HEADWALLS: EARTH PRESSURE ONLY
WINGWALLS: EARTH PRESSURE ONLY
DESIGN FILL HEIGHT: 7'-0" MIN. TO 10'-0" MAX.
FROM TOP OF CROWN TO TOP OF PAVEMENT.
DESIGN METHOD: LOAD RESISTANCE FACTOR DESIGN PER AASHTO SPECIFICATION
NOMINAL AXIAL HP14x73 PILE RESISTANCE = 380 KIPS/PILE
FACTORED AXIAL HP14x73 PILE RESISTANCE = 209 KIPS/PILE
LATERAL PILE RESISTANCE = 47 KIPS (½" DEFLECTION)

*FOUNDATION EXCAVATION AND SUBGRADE PREPARATION SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL REPORT FOR THIS PROJECT PREPARED BY HILLIS-CARNES ENGINEERING ASSOC. DATED MAY 2, 2017 WITH UPDATED RESISTANCE FACTOR PER EMAIL DATED 10/9/2017.

MATERIALS

PRECAST UNITS SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH CON/SPAN® SPECIFICATIONS. CONCRETE FOR FOOTINGS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI. REINFORCING STEEL FOR FOOTINGS SHALL CONFORM TO ASTM A615 OR A996-GRADE 60.

WESTMOUNT
HOWARD COUNTY, MARYLAND



LOCATION PLAN

NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6.27.19

Chief, Development Engineering Division — Date 6.24.19

11/3/19

CT1

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9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

DES. JMF | DRN. TRL | CHK. XXX

DATE	REVISION	BY	APP'R.

PREPARED FOR:

WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36225, EXPIRATION DATE: AUGUST 19,2020.

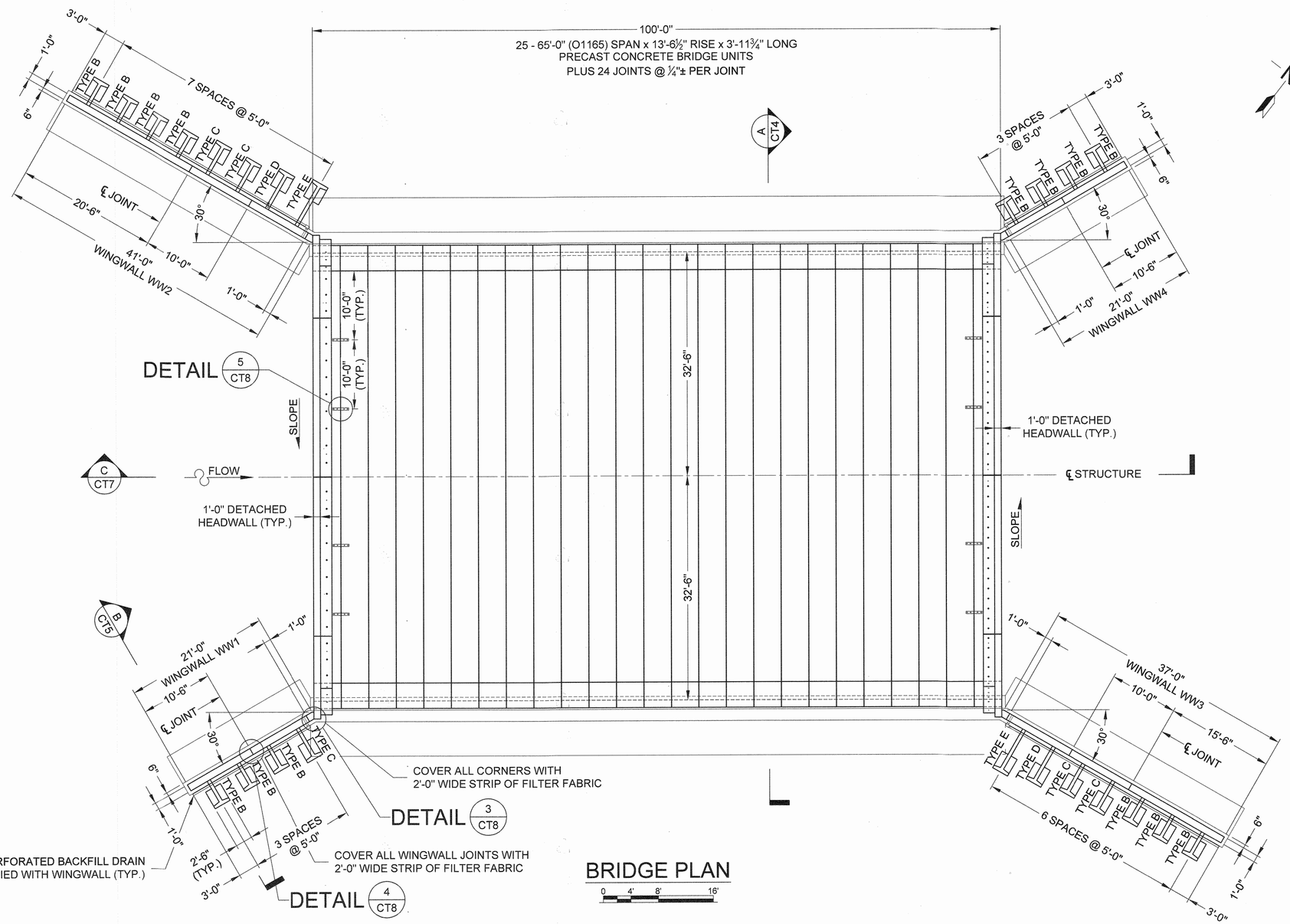
LOCATION PLAN & NOTES

WESTMOUNT – PHASE 3
LOTS 172–264, OPEN SPACE LOTS 265–292
AND NON–BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON–BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1/4" = 1'-0"	R-ED	540936-010
DATE	TAX MAP – GRID	SHEET
DEC., 2018	23-6&12	75 OF 92

F 17–001



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6-27-19

Chief, Development Engineering Division — Date 6.24.19

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11/1/19

BRIDGE PLAN

WESTMOUNT – PHASE 3
LOTS 172–264, OPEN SPACE LOTS 265–292
AND NON–BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON–BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

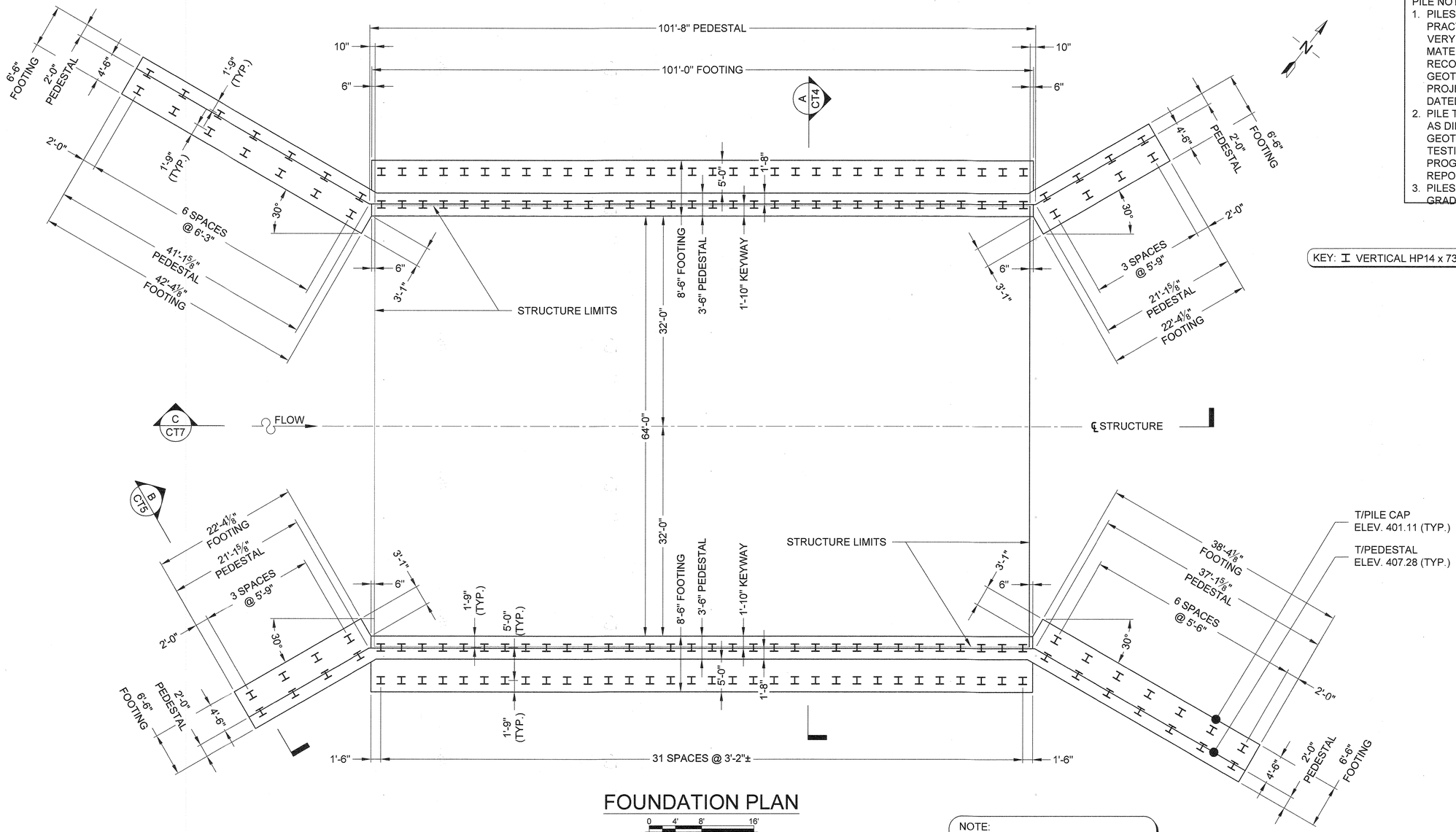
SCALE	ZONING	G. L. W. FILE No.
1/8" = 1'-0"	R-ED	540936-010
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	76 OF 92

CT2

F 17-001

PILE NOTES:
1. PILES SHALL BE DRIVEN TO PRACTICAL REFUSAL IN THE VERY DENSE DECOMPOSED MATERIALS AS PER THE RECOMMENDATIONS IN THE GEOTEXTILE REPORT FOR THIS PROJECT BY HILLIS-CARNES DATED 5/2/2017.
2. PILE TIP ELEVATION SHALL BE AS DIRECTED BY THE PROJECT GEOTECHNICAL ENGINEER. PILE TESTING AND INSPECTION PROGRAM PER GEOTECHNICAL REPORT.
3. PILES SHALL BE ASTM A582 GRADE 50.

KEY: I VERTICAL HP14 x 73 PILE



FOUNDATION PLAN

0 4' 8' 16'

NOTE:
LAP (3'-0") #6 LONGITUDINAL BARS IN WINGWALL AND BRIDGE FOOTINGS TO MAKE CONTINUOUS

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 6-27-19
Chief, Development Engineering Division — Date 6.24.19

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11/3/19

FOUNDATION PLAN

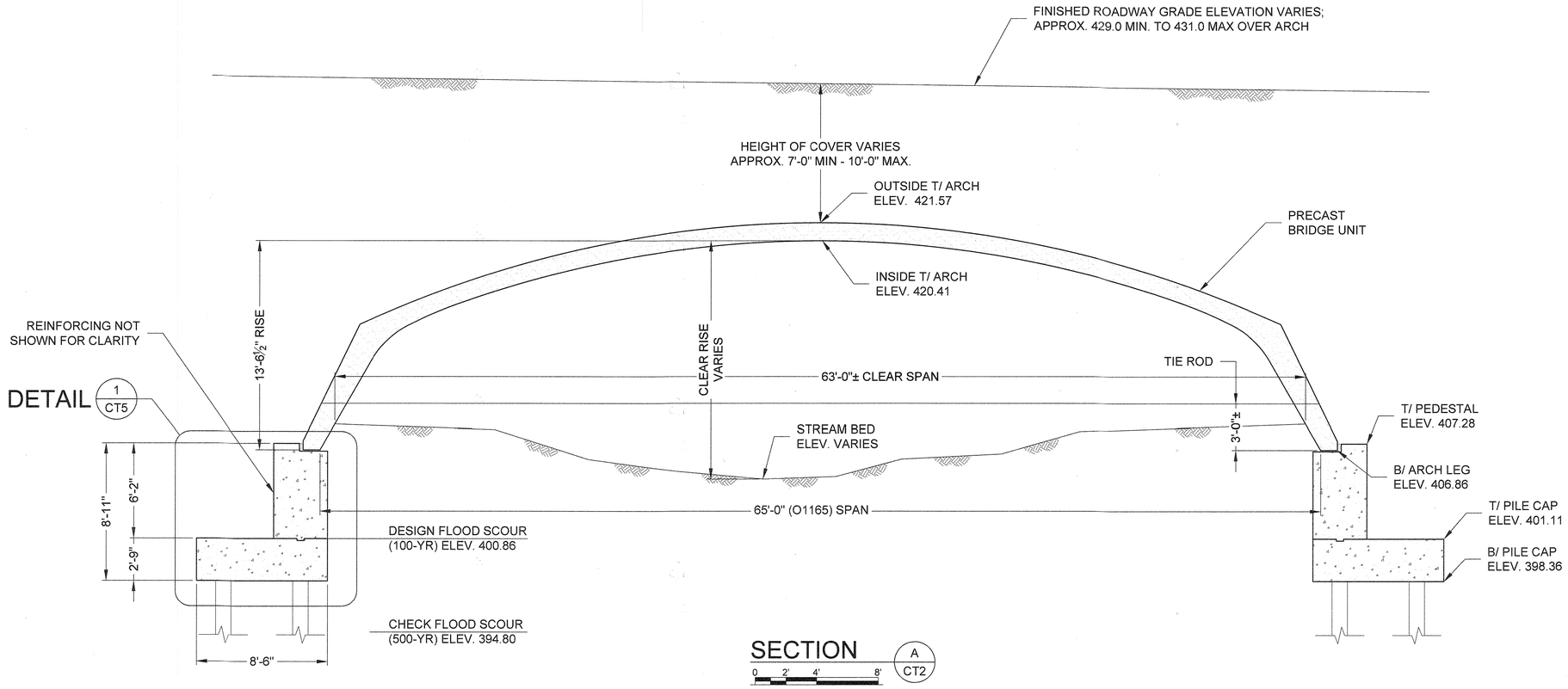
WESTMOUNT – PHASE 3
LOTS 172–264, OPEN SPACE LOTS 265–292
AND NON–BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON–BUILDABLE BULK PARCEL D

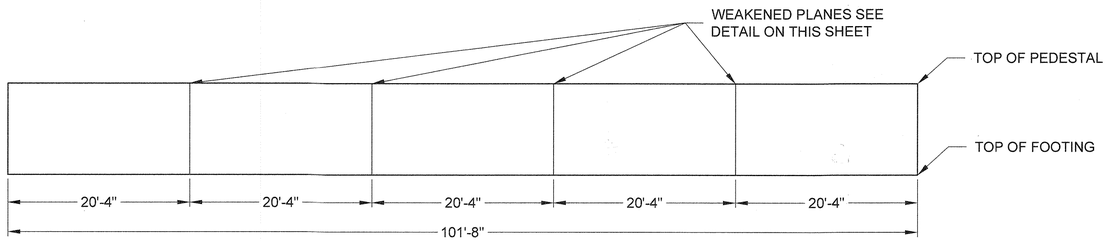
ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1/8" = 1'-0"	R-ED	540936-010
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	77 OF 92

CT3

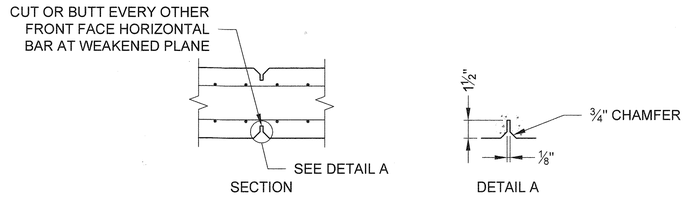
F 17-001





PEDESTAL JOINT LAYOUT

NOT TO SCALE



WEAKENED PLANES

NOTE: JOINT MAY BE FORMED WITH ⅛" HARDBOARD AND CUT BACK TO THE ROOT OF THE CHAMFER ON THE EXPOSED FACE.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6.27.19

Chief, Development Engineering Division — Date 6.24.19

4/3/19

CT4

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DATE	REVISION	BY	APP'R.

PREPARED FOR:

WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36225, EXPIRATION DATE: AUGUST 19,2020.

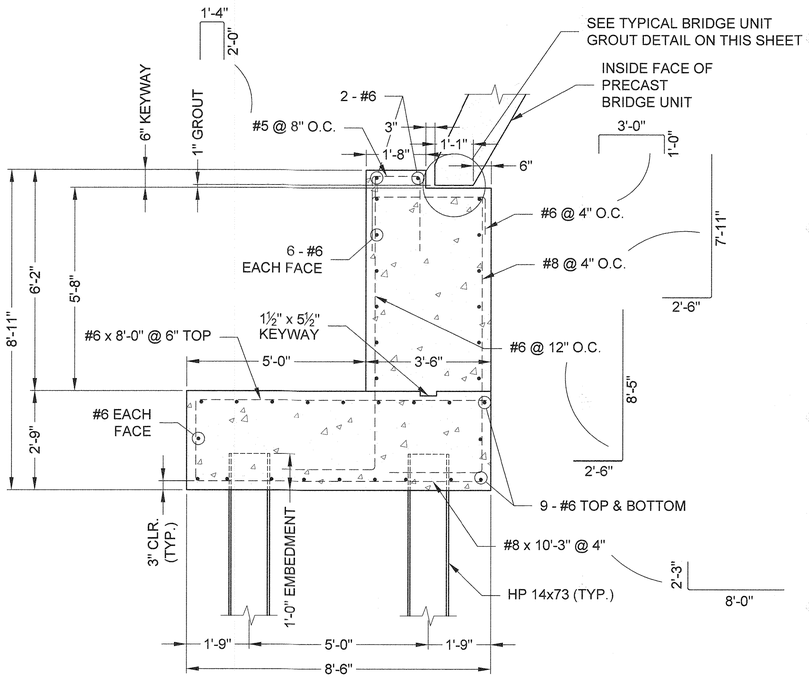
SECTIONS & DETAILS

WESTMOUNT – PHASE 3
LOTS 172–264, OPEN SPACE LOTS 265–292
AND NON–BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON–BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

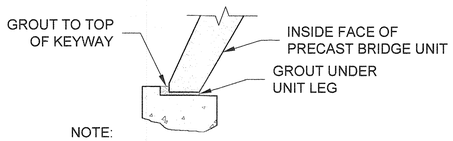
SCALE	ZONING	G. L. W. FILE No.
1/4" = 1'-0"	R-ED	540936-010
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	78 OF 92

F 17–001



DETAIL 1 / CT4

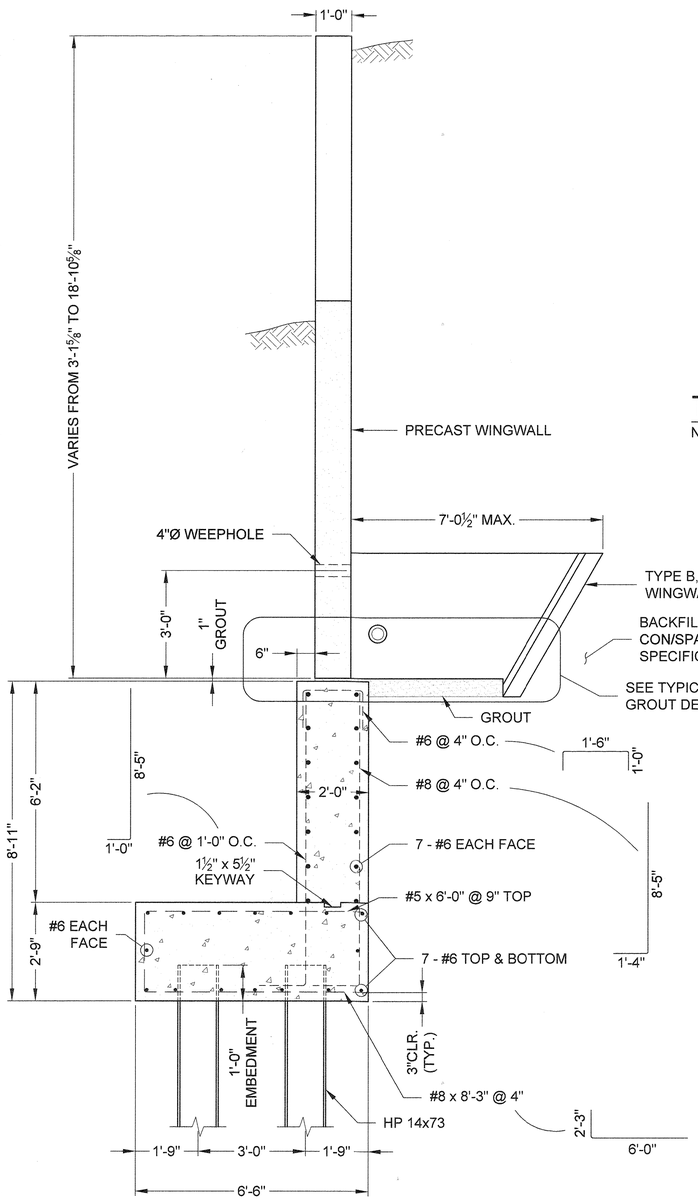
0 1' 2' 4'



NOTE:
FILL ENTIRE KEYWAY INCLUDING NOMINAL 1" VOID BETWEEN BOTTOM OF KEYWAY AND BOTTOM OF PRECAST BRIDGE UNIT LEG WITH GROUT.

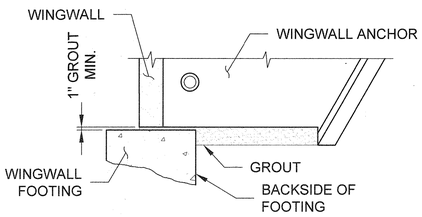
TYPICAL BRIDGE UNIT GROUT DETAIL

NOT TO SCALE



SECTION B / CT2

0 1' 2' 4'



NOTES:
- MINIMUM 1" GROUT UNDER WINGWALL LEG & ANCHOR STEM.
- AREA BETWEEN WINGWALL FOOTING AND WINGWALL ANCHOR SHALL BE GROUTED SOLID BEFORE BACKFILL.
- FORM BACKSIDE OF FOOTING TO DIMENSIONS SHOWN ON FOUNDATION PLAN.

TYPICAL WINGWALL GROUT DETAIL

NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6.27.19

Chief, Development Engineering Division — Date 6.24.19

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1/3/19

SECTIONS & DETAILS

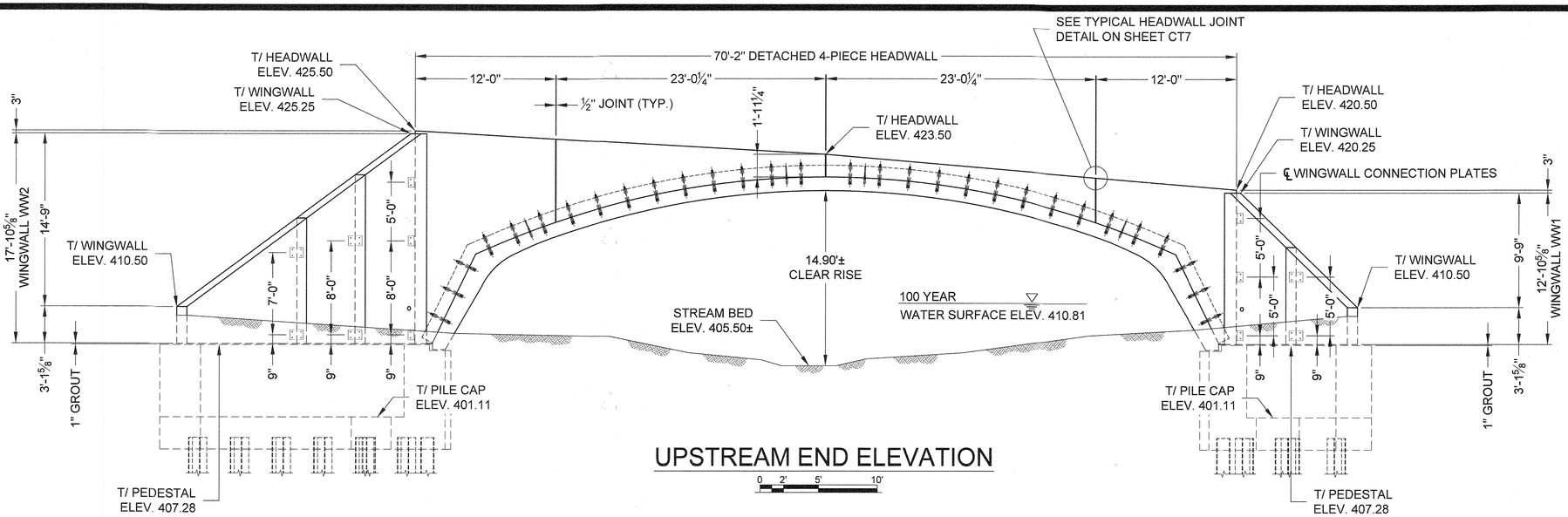
WESTMOUNT – PHASE 3
LOTS 172–264, OPEN SPACE LOTS 265–292
AND NON–BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON–BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1/4" = 1'-0"	R-ED	540936-010
DATE	TAX MAP – GRID	SHEET
DEC., 2018	23-6&12	79 OF 92

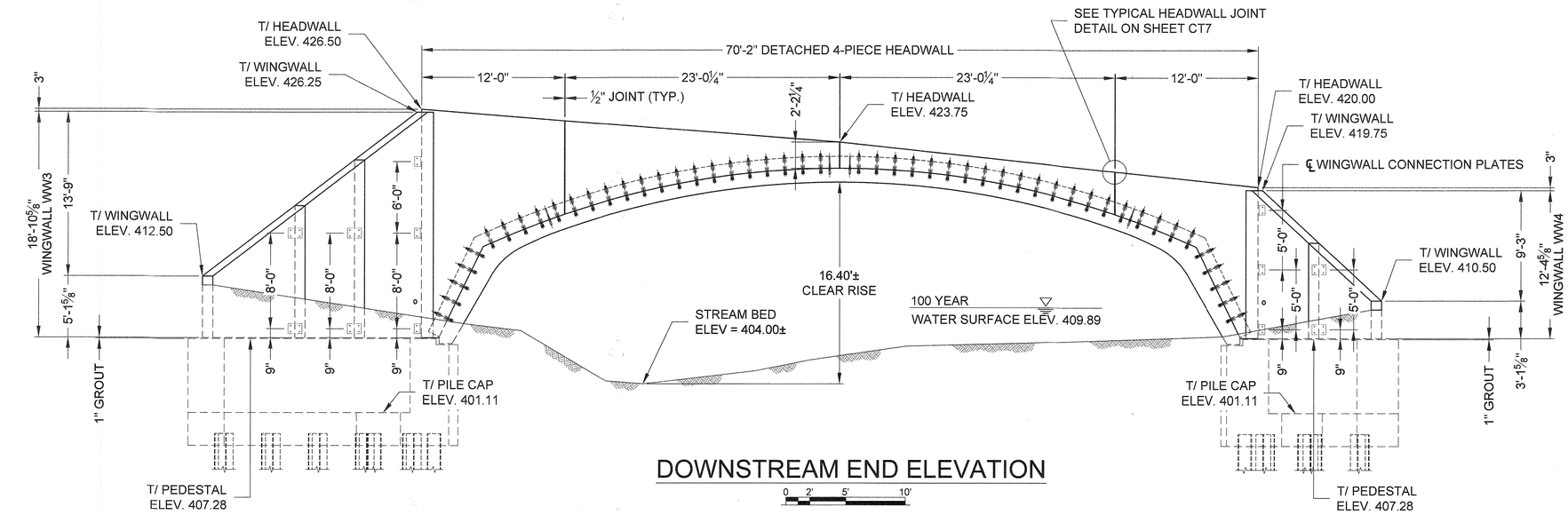
CT5

F 17-001



UPSTREAM END ELEVATION

0 2' 5' 10'



DOWNSTREAM END ELEVATION

0 2' 5' 10'

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6.27.19

Chief, Development Engineering Division — Date 6.24.19

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1/3/19

UPSTREAM & DOWNSTREAM ELEVATIONS

WESTMOUNT – PHASE 3

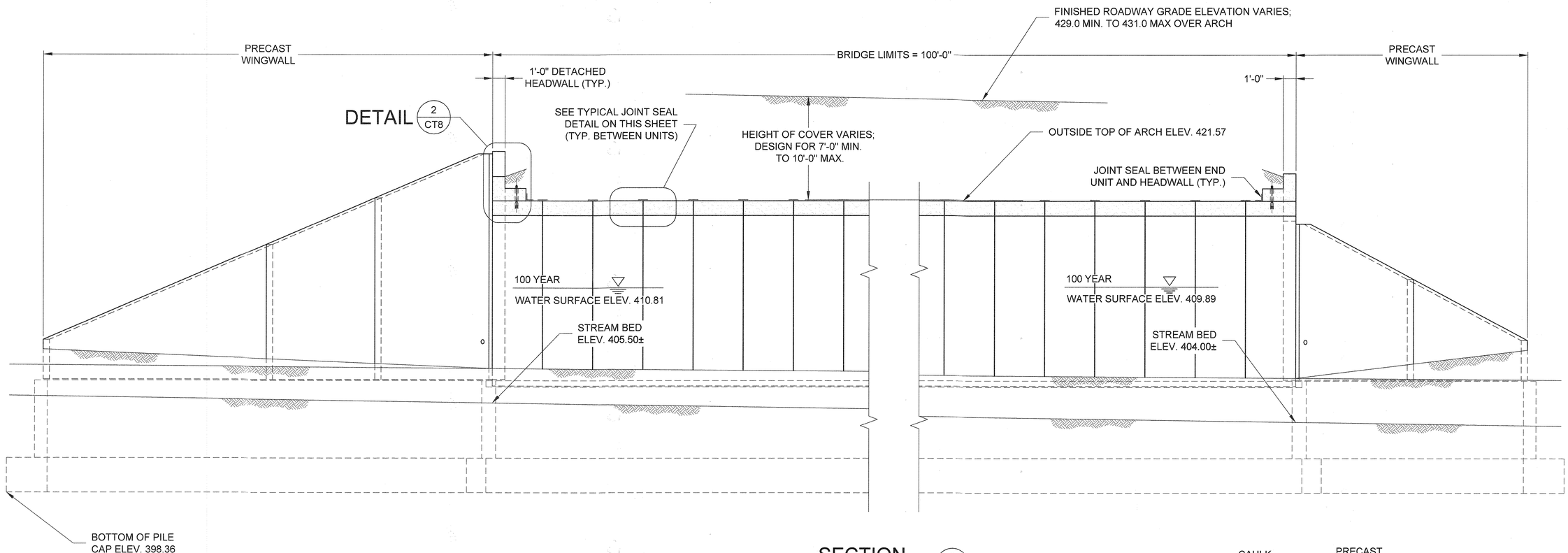
LOTS 172–264, OPEN SPACE LOTS 265–292
AND NON–BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON–BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

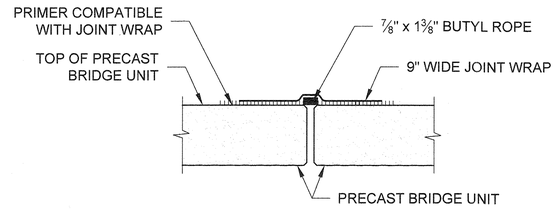
SCALE	ZONING	G. L. W. FILE No.
3/16" = 1'-0"	R-ED	540936-010
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	80 OF 92

CT6

F 17-001

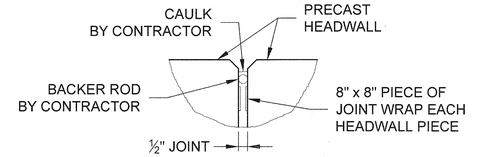


SECTION C CT2
0 2' 4' 8'



TYPICAL JOINT SEAL DETAIL

NOT TO SCALE



TYPICAL HEADWALL JOINT DETAIL

NOT TO SCALE

- REFERENCE GLW SHEET 2 OF 84 "ROAD CONSTRUCTION PLAN & PROFILE - WESTMOUNT PARKWAY" FOR PROPOSED ROADWAY PLAN AND PROFILE AT BRIDGE LOCATION.
- REFERENCE GLW SHEET 16 OF 84 "GRADING PLAN" FOR PROPOSED GRADING PLAN AT BRIDGE LOCATION.
- REFERENCE GLW SHEET 16 OF 84 "GRADING PLAN" FOR SPECIFICATION NOTES REGARDING ROADWAY GUIDE RAIL AND PEDESTRIAN FENCING.
- REFERENCE GLW SHEET 30 OF 84 "STORM DRAIN PROFILES" FOR 100-YEAR WATER SURFACE ELEVATIONS AT BRIDGE LOCATION.
- REFERENCE CONTECH SHEET 80 OF 84 "UPSTREAM AND DOWNSTREAM ELEVATIONS" FOR PROPOSED TOP OF HEADWALL AND PROPOSED TOP OF WINGWALL ELEVATIONS.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 6-27-19
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DATE	REVISION	BY	APP'R.

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1/3/19

SECTIONS & DETAILS

WESTMOUNT - PHASE 3
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A RESUBDIVISION OF NON-BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

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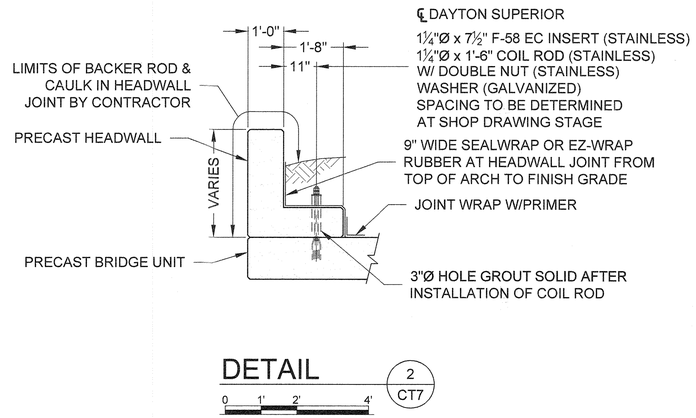
1/4" = 1'-0"	R-ED	540936-010
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	81 OF 92

CT7

F 17-001



DETAIL 2 CT7
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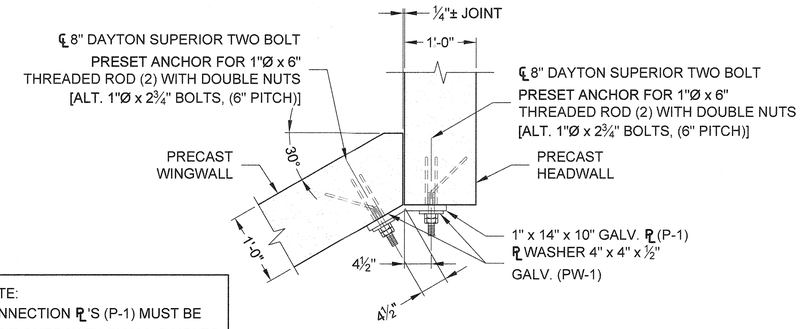
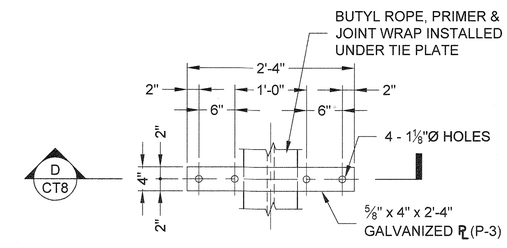
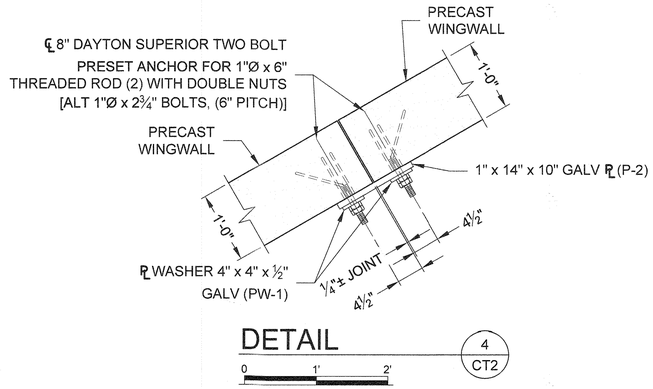


NOTE:
CONNECTION ℄'S (P-1) MUST BE POSITIONED WITH SMALL Ø HOLES TOWARD PRECAST HEADWALL

DETAIL @ HEADWALL 3 CT2
0 1' 2'



DETAIL 5 CT2
NOT TO SCALE



DETAIL 4 CT2
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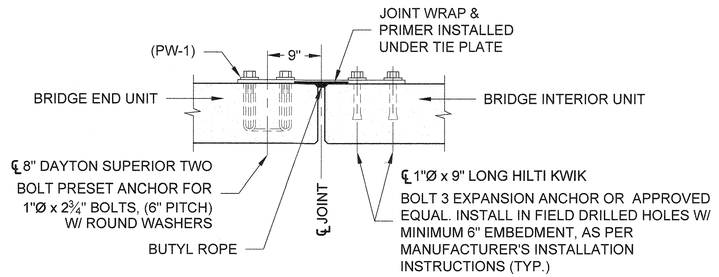

SECTION D CT8
NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6.27.19

Chief, Development Engineering Division — Date 6.27.19

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

DES. JMF | DRN. TRL | CHK. XXX

DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36225, EXPIRATION DATE: AUGUST 19,2020.

11/3/19

SECTIONS & DETAILS

WESTMOUNT – PHASE 3
LOTS 172–264, OPEN SPACE LOTS 265–292
AND NON–BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON–BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1/4" = 1'-0"	R-ED	540936-010
DATE	TAX MAP – GRID	SHEET
DEC., 2018	23-6&12	82 OF 92

CT8

F 17-001

SPECIFICATIONS FOR MANUFACTURE AND INSTALLATION OF CON/SPAN® O-SERIES BRIDGE SYSTEMS

1. DESCRIPTION
   1.1. TYPE - THIS WORK SHALL CONSIST OF FURNISHING AND CONSTRUCTING A CON/SPAN® O-SERIES BRIDGE SYSTEM IN ACCORDANCE WITH THESE SPECIFICATIONS AND IN REASONABLY CLOSE CONFORMITY WITH THE LINES, GRADES, DESIGN AND DIMENSIONS SHOWN ON THE PLANS OR AS ESTABLISHED BY THE ENGINEER. IN SITUATIONS WHERE TWO OR MORE SPECIFICATIONS APPLY TO THIS WORK, THE MOST STRINGENT REQUIREMENTS SHALL GOVERN.
   1.2. DESIGNATION - PRECAST REINFORCED CONCRETE CON/SPAN® O-SERIES BRIDGE UNITS MANUFACTURED IN ACCORDANCE WITH THIS SPECIFICATION SHALL BE DESIGNATED BY SPAN AND RISE. PRECAST REINFORCED CONCRETE WINGWALLS AND HEADWALLS MANUFACTURED IN ACCORDANCE WITH THIS SPECIFICATION SHALL BE DESIGNATED BY LENGTH, HEIGHT, AND DEFLECTION ANGLE. PRECAST REINFORCED CONCRETE EXPRESS™ FOUNDATION UNITS MANUFACTURED IN ACCORDANCE WITH THIS SPECIFICATION SHALL BE DESIGNATED BY LENGTH, HEIGHT AND WIDTH.

2. DESIGN
   2.1. SPECIFICATIONS - THE PRECAST ELEMENTS ARE DESIGNED IN ACCORDANCE WITH THE "AASHTO LRFD BRIDGE SPECIFICATION" 7TH EDITION, ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2015. A MINIMUM OF ONE FOOT OF COVER ABOVE THE CROWN OF THE BRIDGE UNITS IS REQUIRED IN THE INSTALLED CONDITION. (UNLESS NOTED OTHERWISE ON THE SHOP DRAWINGS AND DESIGNED ACCORDINGLY.)

3. MATERIALS
   3.1. CONCRETE - THE CONCRETE FOR THE PRECAST ELEMENTS SHALL BE AIR-ENTRAINED WHEN INSTALLED IN AREAS SUBJECT TO FREEZE-THAW CONDITIONS, COMPOSED OF PORTLAND CEMENT, FINE AND COARSE AGGREGATES, ADMIXTURES AND WATER. AIR-ENTRAINED CONCRETE SHALL CONTAIN 6 ± 2 PERCENT AIR. THE AIR- ENTRAINING ADMIXTURE SHALL CONFORM TO AASHT0 M154. THE MINIMUM CONCRETE COMPRESSIVE STRENGTH SHALL BE AS SHOWN ON THE SHOP DRAWINGS.
      3.1.1. PORTLAND CEMENT - SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATIONS C150-TYPE I, TYPE II, OR TYPE III CEMENT.
      3.1.2. COARSE AGGREGATE - SHALL CONSIST OF STONE HAVING A MAXIMUM SIZE OF 1 INCH. AGGREGATE SHALL MEET REQUIREMENTS FOR ASTM C33.
      3.1.3. WATER REDUCING ADMIXTURE - THE MANUFACTURER MAY SUBMIT, FOR APPROVAL BY THE ENGINEER, A WATER-REDUCING ADMIXTURE FOR THE PURPOSE OF INCREASING WORKABILITY AND REDUCING THE WATER REQUIREMENT FOR THE CONCRETE.
      3.1.4. CALCIUM CHLORIDE - THE ADDITION TO THE MIX OF CALCIUM CHLORIDE OR ADMIXTURES CONTAINING CALCIUM CHLORIDE WILL NOT BE PERMITTED.
      3.1.5. MIXTURE - THE AGGREGATES, CEMENT AND WATER SHALL BE PROPORTIONED AND MIXED IN A BATCH MIXER TO PRODUCE A HOMOGENEOUS CONCRETE MEETING THE STRENGTH REQUIREMENTS OF THIS SPECIFICATION. THE PROPORTION OF PORTLAND CEMENT IN THE MIXTURE SHALL NOT BE LESS THAN 564 POUNDS (6 SACKS) PER CUBIC YARD OF CONCRETE.
   3.2. STEEL REINFORCEMENT
      3.2.1. THE MINIMUM STEEL YIELD STRENGTH SHALL BE 60,000 PSI, UNLESS OTHERWISE NOTED ON THE SHOP DRAWINGS.
      3.2.2. ALL REINFORCING STEEL FOR THE PRECAST ELEMENTS SHALL BE FABRICATED AND PLACED IN ACCORDANCE WITH THE DETAILED SHOP DRAWINGS SUBMITTED BY THE MANUFACTURER.
      3.2.3. REINFORCEMENT SHALL CONSIST OF WELDED WIRE REINFORCING CONFORMING TO ASTM SPECIFICATION A 1064, OR DEFORMED BILLET STEEL BARS CONFORMING TO ASTM SPECIFICATION A 615, GRADE 60. LONGITUDINAL DISTRIBUTION REINFORCEMENT MAY CONSIST OF WELDED WIRE FABRIC OR DEFORMED BILLET-STEEL BARS.
   3.3. STEEL HARDWARE
      3.3.1. BOLTS AND THREADED RODS FOR WINGWALL CONNECTIONS SHALL CONFORM TO ASTM A 307. NUTS SHALL CONFORM TO AASHTO M292 (ASTM A194) GRADE 2H. ALL BOLTS, THREADED RODS AND NUTS USED IN WINGWALL CONNECTIONS SHALL BE MECHANICALLY ZINC COATED IN ACCORDANCE WITH ASTM B695 CLASS 50.
      3.3.2. STRUCTURAL STEEL FOR WINGWALL CONNECTION PLATES AND PLATE WASHERS SHALL CONFORM TO AASHTO M 270 (ASTM A 709) GRADE 36 AND SHALL BE HOT DIP GALVANIZED AS PER AASHTO M111 (ASTM A123).
      3.3.3. INSERTS FOR WINGWALLS SHALL BE 1" DIAMETER TWO-BOLT PRESET WINGWALL ANCHORS AS MANUFACTURED BY DAYTON SUPERIOR CONCRETE ACCESSORIES, MIAMISBURG, OHIO, (800) 745-3700 AND SHALL BE MECHANICALLY ZINC COATED IN ACCORDANCE WITH ASTM B695 CLASS 50.
      3.3.4. FERRULE LOOP INSERTS SHALL BE F-64 FERRULE LOOP INSERTS AS MANUFACTURED BY DAYTON SUPERIOR CONCRETE ACCESSORIES, MIAMISBURG, OHIO, (800) 745-3700.
      3.3.5. HOOK BOLTS USED IN ATTACHED HEADWALL CONNECTIONS SHALL BE ASTM A307.
      3.3.6. INSERTS FOR DETACHED HEADWALL CONNECTIONS SHALL BE AISI TYPE 304 STAINLESS STEEL, EXPANDED COIL INSERTS AS MANUFACTURED BY DAYTON SUPERIOR CONCRETE ACCESSORIES, MIAMISBURG, OHIO, (800) 745-3700. COIL RODS AND NUTS USED IN HEADWALL CONNECTIONS SHALL BE AISI TYPE 304 STAINLESS STEEL. WASHERS USED IN HEADWALL CONNECTIONS SHALL BE EITHER AISI TYPE 304 STAINLESS STEEL PLATE WASHERS OR AASHTO M270 (ASTM A709) GRADE 36 PLATE WASHERS HOT DIP GALVANIZED AS PER AASHTO M111 (ASTM A123).
      3.3.7. MECHANICAL SPLICES OF REINFORCING BARS SHALL BE MADE USING THE DOWEL BAR SPLICER SYSTEM AS MANUFACTURED BY DAYTON SUPERIOR CONCRETE ACCESSORIES, MIAMISBURG, OHIO, (800) 745-3700, AND SHALL CONSIST OF THE DOWEL BAR SPLICER (DB-SAE) AND DOWEL-IN (DI).

4. MANUFACTURE OF PRECAST ELEMENTS - SUBJECT TO THE PROVISIONS OF SECTION 5, BELOW, THE PRECAST ELEMENT DIMENSION AND REINFORCEMENT DETAILS SHALL BE AS PRESCRIBED IN THE PLAN AND SHOP DRAWINGS PROVIDED BY THE MANUFACTURER.
   4.1. FORMS - THE FORMS USED IN MANUFACTURE SHALL BE SUFFICIENTLY RIGID AND ACCURATE TO MAINTAIN THE REQUIRED PRECAST ELEMENT DIMENSIONS WITHIN THE PERMISSIBLE VARIATIONS GIVEN IN SECTION 5 OF THESE SPECIFICATIONS. ALL CASTING SURFACES SHALL BE OF A SMOOTH MATERIAL.
   4.2. PLACEMENT OF REINFORCEMENT
      4.2.1. PLACEMENT OF REINFORCEMENT IN PRECAST BRIDGE UNITS - THE COVER OF CONCRETE OVER THE OUTSIDE CIRCUMFERENTIAL REINFORCEMENT SHALL BE 2" MINIMUM. THE COVER OF CONCRETE OVER THE INSIDE CIRCUMFERENTIAL REINFORCEMENT SHALL BE 1½" MINIMUM, UNLESS OTHERWISE NOTED ON THE SHOP DRAWINGS. THE CLEAR DISTANCE OF THE END CIRCUMFERENTIAL WIRES SHALL NOT BE LESS THAN 1" NOR MORE THAN 2" FROM THE ENDS OF EACE SECTION. REINFORCEMENT SHALL BE ASSEMBLED UTILIZING SINGLE OR MULTIPLE LAYERS OF WELDED WIRE FABRIC (NOT TO EXCEED 3 LAYERS), SUPPLEMENTED WITH A SINGLE LAYER OF DEFORMED BILLET-STEEL BARS, WHEN NECESSARY. WELDED WIRE FABRIC SHALL BE COMPOSED OF CIRCUMFERENTIAL AND LONGITUDINAL WIRES MEETING THE SPACING REQUIREMENTS OF 4.3, BELOW, AND SHALL CONTAIN SUFFICIENT LONGITUDINAL WIRES EXTENDING THROUGH THE BRIDGE UNIT TO MAINTAIN THE SHAPE AND POSITION OF THE REINFORCEMENT. LONGITUDINAL DISTRIBUTION REINFORCEMENT MAY BE WELDED WIRE FABRIC OR DEFORMED BILLET-STEEL BARS AND SHALL MEET THE SPACING REQUIREMENTS OF 4.3, BELOW. THE ENDS OF THE LONGITUDINAL DISTRIBUTION REINFORCEMENT SHALL BE NOT MORE THAN 3" AND NOT LESS THAN 1½" FROM THE ENDS OF THE BRIDGE UNIT.
      4.2.2. BENDING OF REINFORCEMENT FOR PRECAST BRIDGE UNITS - THE OUTSIDE AND INSIDE CIRCUMFERENTIAL REINFORCING STEEL FOR THE CORNERS OF THE BRIDGE SHALL BE BENT TO SUCH AN ANGLE THAT IS APPROXIMATELY EQUAL TO THE CONFIGURATION OF THE BRIDGE'S OUTSIDE CORNER.
      4.2.3. PLACEMENT OF REINFORCEMENT FOR PRECAST WINGWALLS AND HEADWALLS - THE COVER OF CONCRETE OVER THE LONGITUDINAL AND TRANSVERSE REINFORCEMENT SHALL BE 2" MINIMUM. THE CLEAR DISTANCE FROM THE END OF EACH PRECAST ELEMENT TO THE END OF REINFORCING STEEL SHALL NOT BE LESS THAN 1½" NOR MORE THAN 3". REINFORCEMENT SHALL BE ASSEMBLED UTILIZING A SINGLE LAYER OF WELDED WIRE FABRIC, OR A SINGLE LAYER OF DEFORMED BILLET-STEEL BARS. WELDED WIRE FABRIC SHALL BE COMPOSED OF TRANSVERSE AND LONGITUDINAL WIRES MEETING THE SPACING REQUIREMENTS OF 4.3, BELOW, AND SHALL CONTAIN SUFFICIENT LONGITUDINAL WIRES EXTENDING THROUGH THE ELEMENT TO MAINTAIN THE SHAPE AND POSITION OF THE REINFORCEMENT. LONGITUDINAL REINFORCEMENT MAY BE WELDED WIRE FABRIC OR DEFORMED BILLET-STEEL BARS AND SHALL MEET THE SPACING REQUIREMENTS OF 4.3, BELOW.
      4.2.4. PLACEMENT OF REINFORCMENT FOR PRECAST FOUNDATION UNITS - THE COVER OF CONCRETE OVER THE BOTTOM REINFORCEMENT SHALL BE 3 INCHES MINIMUM. THE COVER OF CONCRETE FOR ALL OTHER REINFORCEMENT SHALL BE 2 INCHES MINIMUM. THE CLEAR DISTANCE FROM THE END OF EACH PRECAST ELEMENT TO THE END OF REINFORCING STEEL SHALL NOT BE LESS THAN 2 INCHES NOR MORE THAN 3 INCHES. REINFORCEMENT SHALL BE ASSEMBLED UTILIZING A SINGLE LAYER OF WELDED WIRE FABRIC OR A SINGLE LAYER OF DEFOREMED BILLET-STEEL BARS. WELDED WIRE FABRIC SHALL BE COMPOSED OF TRANSVERSE AND LONGITUDINAL WIRES MEETING THE SPACING REQUIREMENTS OF 4.3, BELOW, AND SHALL CONTAIN SUFFICIENT LONGITUDINAL WIRES EXTENDING THROUGH THE ELEMENT TO MAINTAIN THE SHAPE AND POSITION OF THE REINFORCEMENT. LONGITUDINAL REINFORCEMENT MAY BE WELDED WIRE FABRIC OR DEFORMED BILLET-STEEL BARS AND SHALL MEET THE SPACING REQUIREMENTS OF 4.3, BELOW.
   4.3. LAPS, WELDS, SPACING
      4.3.1. LAPS, WELDS, AND SPACING FOR PRECAST BRIDGE UNITS - TENSION SPLICES IN THE CIRCUMFERENTIAL REINFORCEMENT SHALL BE MADE BY LAPPING. LAPS MAY BE TACK WELDED TOGETHER FOR ASSEMBLY PURPOSES. FOR SMOOTH WELDED WIRE FABRIC, THE OVERLAP SHALL MEET THE REQUIREMENTS OF AASHTO 5.11.2.5.2 AND 5.11.6.2. FOR DEFORMED WELDED WIRE FABRIC, THE OVERLAP SHALL MEET THE REQUIREMENTS OF AASHTO 5.11.2.5.1 AND 5.11.6.1. THE OVERLAP OF WELDED WIRE FABRIC SHALL BE MEASURED BETWEEN THE OUTER-MOST LONGITUDINAL WIRES OF EACH FABRIC SHEET. FOR DEFORMED BILLET-STEEL BARS, THE OVERLAP SHALL MEET THE REQUIREMENTS OF AASHTO 5.11.2.1 FOR SPLICES OTHER THAN TENSION SPLICES, THE OVERLAP SHALL BE A MINIMUM OF 1'-0" FOR WELDED WIRE FABRIC OR DEFORMED BILLET-STEEL BARS. THE SPACING CENTER TO CENTER OF THE CIRCUMFERENTIAL WIRES IN A WIRE FABRIC SHEET SHALL BE NOT LESS THAN 2" NOR MORE THAN 4". THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8". THE SPACING CENTER TO CENTER OF THE LONGITUDINAL DISTRIBUTION STEEL FOR EITHER LINE OF REINFORCING IN THE TOP SLAB SHALL BE NOT MORE THAN 1'-4".
      4.3.2. LAPS, WELDS, AND SPACING FOR PRECAST WINGWALLS, HEADWALLS AND FOUNDATIONS - SPLICES IN THE REINFORCEMENT SHALL BE MADE BY LAPPING. LAPS MAY BE TACK WELDED TOGETHER FOR ASSEMBLY PURPOSES. FOR SMOOTH WELDED WIRE FABRIC, THE OVERLAP SHALL MEET THE REQUIREMENTS OF AASHTO 5.11.2.5.2 AND 5.11.6.2. FOR DEFORMED WELDED WIRE FABRIC, THE OVERLAP SHALL MEET THE REQUIREMENTS OF AASHTO 5.11.2.5.1 AND 5.11.6.1. FOR DEFORMED BILLET-STEEL BARS, THE OVERLAP SHALL MEET THE REQUIREMENTS OF AASHTO 5.11.2.1. THE SPACING CENTER-TO-CENTER OF THE WIRES IN A WIRE FABRIC SHEET SHALL BE NOT LESS THAN 2" NOR MORE THAN 8".
   4.4. CURING - THE PRECAST CONCRETE ELEMENTS SHALL BE CURED FOR A SUFFICIENT LENGTH OF TIME SO THAT THE CONCRETE WILL DEVELOP THE SPECIFIED COMPRESSIVE STRENGTH IN 28 DAYS OR LESS, ANY ONE OF THE FOLLOWING METHODS OF CURING OR COMBINATIONS THERE OF SHALL BE USED:
      4.4.1. STEAM CURING - THE PRECAST ELEMENTS MAY BE LOW-PRESSURE STEAM CURED BY A SYSTEM THAT WILL MAINTAIN A MOIST ATMOSPHERE.
      4.4.2. WATER CURING - THE PRECAST ELEMENTS MAY BE WATER CURED BY ANY METHOD THAT WILL KEEP THE SECTIONS MOIST.
      4.4.3. MEMBRANE CURING - A SEALING MEMBRANE CONFORMING TO THE REQUIREMENTS OF ASTM SPECIFICATION C309 MAY BE APPLIED AND SHALL BE LEFT INTACT UNTIL THE REQUIRED CONCRETE COMPRESSIVE STRENGTH IS ATTAINED. THE CONCRETE TEMPERATURE AT THE TIME OF APPLICATION SHALL BE WITHIN +/- 10 DEGREES F OF THE ATMOSPHERIC TEMPERATURE. ALL SURFACES SHALL BE KEPT MOIST PRIOR TO THE APPLICATION OF THE COMPOUNDS AND SHALL BE DAMP WHEN THE COMPOUND IS APPLIED.
   4.5. STORAGE, HANDLING & DELIVERY
      4.5.1. STORAGE - PRECAST CONCRETE BRIDGE ELEMENTS SHALL BE LIFTED AND STORED IN "AS-CAST" POSITION. PRECAST CONCRETE HEADWALL AND WINGWALL UNITS ARE CAST, STORED AND SHIPPED IN A FLAT POSITION. THE PRECAST ELEMENTS SHALL BE STORED IN SUCH A MANNER TO PREVENT CRACKING OR DAMAGE. STORE ELEMENTS USING TIMBER SUPPORTS AS APPROPRIATE. THE UNITS SHALL NOT BE MOVED UNTIL THE CONCRETE COMPRESSIVE STRENGTH HAS REACHED A MINIMUM OF 2500 PSI, AND THEY SHALL NOT BE STORED IN AN UPRIGHT POSITION.
      4.5.2. HANDLING - HANDLING DEVICES SHALL BE PERMITTED IN EACH PRECAST ELEMENT FOR THE PURPOSE OF HANDLING AND SETTING. SPREADER BEAMS MAY BE REQUIRED FOR THE LIFTING OF PRECAST CONCRETE BRIDGE ELEMENTS TO PRECLUDE DAMAGE FROM BENDING OR TORSION FORCES.
      4.5.3. DELIVERY - PRECAST CONCRETE ELEMENTS MUST NOT BE SHIPPED UNTIL THE CONCRETE HAS ATTAINED THE SPECIFIED DESIGN COMPRESSIVE STRENGTH, OR AS DIRECTED BY THE DESIGN ENGINEER. PRECAST CONCRETE ELEMENTS MAY BE UNLOADED AND PLACED ON THE GROUND AT THE SITE UNTIL INSTALLED. STORE ELEMENTS USING TIMBER SUPPORTS AS APPROPRIATE.
   4.6. QUALITY ASSURANCE - THE PRECASTER SHALL DEMONSTRATE ADHERENCE TO THE STANDARDS SET FORTH IN THE NPCA QUALITY CONTROL MANUAL. THE PRECASTER SHALL MEET EITHER SECTION 4.6.1 OR 4.6.2
      4.6.1. CERTIFICATION - THE PRECASTER SHALL BE CERTIFIED BY THE PRECAST/PRESTRESSED CONCRETE INSTITUTE PLANT CERTIFICATION PROGRAM OR THE NATIONAL PRECAST CONCRETE ASSOCIATION'S PLANT CERTIFICATION PROGRAM PRIOR TO AND DURING PRODUCTION OF THE PRODUCTS COVERED BY THIS SPECIFICATION.
      4.6.2. QUALIFICATIONS, TESTING AND INSPECTION
         4.6.2.1. THE PRECASTER SHALL HAVE BEEN IN THE BUSINESS OF PRODUCING PRECAST CONCRETE PRODUCTS SIMILAR TO THOSE SPECIFIED FOR A MINIMUM OF THREE YEARS. HE SHALL MAINTAIN A PERMANENT QUALITY CONTROL DEPARTMENT OR RETAIN AN INDEPENDENT TESTING AGENCY ON A CONTINUING BASIS. THE AGENCY SHALL ISSUE A REPORT, CERTIFIED BY A LICENSED ENGINEER, DETAILING THE ABILITY OF THE PRECASTER TO PRODUCE QUALITY PRODUCTS CONSISTENT WITH INDUSTRY STANDARDS.
         4.6.2.2. THE PRECASTER SHALL SHOW THAT THE FOLLOWING TESTS ARE PERFORMED IN ACCORDANCE WITH THE ASTM STANDARDS INDICATED. TESTS SHALL BE PERFORMED AS INDICATED IN SECTION 6 OF THESE SPECIFICATIONS.
            4.6.2.2.1. AIR CONTENT: C231 OR C173
            4.6.2.2.2. COMPRESSIVE STRENGTH: C31,C39,C497
         4.6.2.3. THE PRECASTER SHALL PROVIDE DOCUMENTATION DEMONSTRATING COMPLIANCE WITH THIS SECTION TO CONTECH® ENGINEERED SOLUTIONS AT REGULAR INTERVALS OR UPON REQUEST.
         4.6.2.4. THE OWNER MAY PLACE AN INSPECTOR IN THE PLANT WHEN THE PRODUCTS COVERED BY THIS SPECIFICATION ARE BEING MANUFACTURED.
      4.6.3. DOCUMENTATION - THE PRECASTER SHALL SUBMIT PRECAST PRODUCTION REPORTS TO CONTECH® ENGINEERED SOLUTIONS AS REQUIRED.

5. PERMISSIBLE VARIATIONS
   5.1. BRIDGE UNITS
      5.1.1. INTERNAL DIMENSIONS - THE INTERNAL DIMENSION SHALL VARY NOT MORE THAN 1% FROM THE DESIGN DIMENSIONS NOR MORE THAN 1½" WHICHEVER IS LESS.
      5.1.2. SLAB AND WALL THICKNESS - THE SLAB AND WALL THICKNESS SHALL NOT BE LESS THAN THAT SHOWN IN THE DESIGN BY MORE THAN ¼". A THICKNESS MORE THAN THAT REQUIRED IN THE DESIGN SHALL NOT BE CAUSE FOR REJECTION.
      5.1.3. LENGTH OF OPPOSITE SURFACES - VARIATIONS IN LAYING LENGTHS OF TWO OPPOSITE SURFACES OF THE BRIDGE UNIT SHALL NOT BE MORE THAN ½" IN ANY SECTION, EXCEPT WHERE BEVELED ENDS FOR LAYING OF CURVES ARE SPECIFIED BY THE PURCHASER.
      5.1.4. LENGTH OF SECTION - THE UNDERRUN IN LENGTH OF A SECTION SHALL NOT BE MORE THAN ½" IN ANY BRIDGE UNIT.
      5.1.5. POSITION OF REINFORCEMENT - THE MAXIMUM VARIATION IN POSITION OF THE REINFORCEMENT SHALL BE ± ½". IN NO CASE SHALL THE COVER OVER THE REINFORCEMENT BE LESS THAN 1½" FOR THE OUTSIDE CIRCUMFERENTIAL STEEL OR LESS THAN 1" FOR THE INSIDE CIRCUMFERENTIAL STEEL AS MEASURED TO THE EXTERNAL OR INTERNAL SURFACE OF THE BRIDGE. THESE TOLERANCES OR COVER REQUIREMENTS DO NOT APPLY TO MATING SURFACES OF THE JOINTS.
      5.1.6. AREA OF REINFORCEMENT - THE AREAS OF STEEL REINFORCEMENT SHALL BE THE DESIGN STEEL AREAS AS SHOWN IN THE MANUFACTURER'S SHOP DRAWINGS. STEEL AREAS GREATER THAN THOSE REQUIRED SHALL NOT BE CAUSE FOR REJECTION. THE PERMISSIBLE VARIATION IN DIAMETER OF ANY REINFORCEMENT SHALL CONFORM TO THE TOLERANCES PRESCRIBED IN THE ASTM SPECIFICATION FOR THAT TYPE OF REINFORCEMENT.
   5.2. WINGWALLS & HEADWALLS
      5.2.1. WALL THICKNESS - THE WALL THICKNESS SHALL NOT VARY FROM THAT SHOWN IN THE DESIGN BY MORE THAN ½".
      5.2.2. LENGTH/HEIGHT OF WALL SECTIONS - THE LENGTH AND HEIGHT OF THE WALL SHALL NOT VARY FROM THAT SHOWN IN THE DESIGN BY MORE THAN ½".
      5.2.3. POSITION OF REINFORCEMENT - THE MAXIMUM VARIATION IN THE POSITION OF THE REINFORCEMENT SHALL BE ± ½" IN NO CASE SHALL THE COVER OVER THE REINFORCEMENT BE LESS THAN 1½".
      5.2.4. SIZE OF REINFORCEMENT - THE PERMISSIBLE VARIATION IN DIAMETER OF ANY REINFORCING SHALL CONFORM TO THE TOLERANCES PRESCRIBED IN THE ASTM SPECIFICATION FOR THAT TYPE OF REINFORCING. STEEL AREA GREATER THAN THAT REQUIRED SHALL NOT BE CAUSE FOR REJECTION.
   5.3. FOUNDATION UNITS
      5.3.1. WALL THICKNESS - THE WALL THICKNESS SHALL NOT VARY FROM THAT SHOWN IN THE DESIGN BY MORE THAN ½".
      5.3.2. LENGTH/ HEIGHT/WIDTH OF FOUNDATION SECTIONS - THE LENGTH, HEIGHT AND WIDTH OF THE FOUNDATION UNITS SHALL NOT VARY FROM THAT SHOWN IN THE DESIGN BY MORE THAN ½".
      5.3.3. POSITION OF REINFORCEMENT - THE MAXIMUM VARIATION IN THE POSITION OF THE REINFORCEMENT SHALL BE ± ½". IN NO CASE SHALL THE COVER OVER THE REINFORCEMENT BE LESS THAN 1½".
      5.3.4. SIZE OF REINFORCEMENT - THE PERMISSIBLE VARIATION IN DIAMETER OF ANY REINFORCING SHALL CONFORM TO THE TOLERANCES PRESCRIBED IN THE ASTM SPECIFICATION FOR THAT TYPE OF REINFORCING. STEEL AREA GREATER THAN THAT REQUIRED SHALL NOT BE CAUSE FOR REJECTION.

6. TESTING/ INSPECTION
   6.1. TESTING
      6.1.1. TYPE OF TEST SPECIMEN - CONCRETE COMPRESSIVE STRENGTH SHALL BE DETERMINED FROM COMPRESSION TESTS MADE ON CYLINDERS OR CORES. FOR CYLINDER TESTING, A MINIMUM OF 4 CYLINDERS SHALL BE TAKEN FOR EACH BRIDGE ELEMENT. EACH ELEMENT SHALL BE CONSIDERED SEPARATELY FOR THE PURPOSE OF TESTING AND ACCEPTANCE.
      6.1.2. COMPRESSION TESTING - CYLINDERS SHALL BE MADE AND TESTED AS PRESCRIBED BY THE ASTM C39 SPECIFICATION. CYLINDERS SHALL BE CURED IN THE SAME ENVIRONMENT AS THE BRIDGE ELEMENTS. CORES SHALL BE OBTAINED AND TESTED FOR COMPRESSIVE STRENGTH IN ACCORDANCE WITH THE PROVISIONS OF THE ASTM C42 SPECIFICATION.
      6.1.3. ACCEPTABILITY OF CYLINDER TESTS - WHEN THE AVERAGE COMPRESSIVE STRENGTH OF ALL CYLINDERS TESTED IS EQUAL TO OR GREATER THAN THE DESIGN COMPRESSIVE STRENGTH, AND NOT MORE THAN 10% OF THE CYLINDERS TESTED HAVE A COMPRESSIVE STRENGTH LESS THAN THE DESIGN CONCRETE STRENGTH, AND NO CYLINDER TESTED HAS A COMPRESSIVE STRENGTH LESS THAN 80% OF THE DESIGN COMPRESSIVE STRENGTH, THEN THE ELEMENT SHALL BE ACCEPTED. WHEN THE COMPRESSIVE STRENGTH OF THE CYLINDERS TESTED DOES NOT CONFORM TO THESE ACCEPTANCE CRITERIA, THE ACCEPTABILITY OF THE ELEMENT MAY BE DETERMINED AS DESCRIBED IN SECTION 6.1.4, BELOW.
      6.1.4. ACCEPTABILITY OF CORE TESTS - THE COMPRESSIVE STRENGTH OF THE CONCRETE IN A BRIDGE ELEMENT IS ACCEPTABLE WHEN THE AVERAGE CORE TEST STRENGTH IS EQUAL TO OR GREATER THAN THE DESIGN CONCRETE STRENGTH. WHEN THE COMPRESSIVE STRENGTH OF A CORE TESTED IS LESS THAN THE DESIGN CONCRETE STRENGTH, THE PRECAST ELEMENT FROM WHICH THAT CORE WAS TAKEN MAY BE RE-CORED. WHEN THE COMPRESSIVE STRENGTH OF THE RE-CORE IS EQUAL TO OR GREATER THAN THE DESIGN CONCRETE STRENGTH, THE COMPRESSIVE STRENGTH OF THE CONCRETE IN THAT BRIDGE ELEMENT IS ACCEPTABLE.
         6.1.4.1. WHEN THE COMPRESSIVE STRENGTH OF ANY RECORE IS LESS THAN THE DESIGN CONCRETE STRENGTH, THE PRECAST ELEMENT FROM WHICH THAT CORE WAS TAKEN SHALL BE REJECTED.
         6.1.4.2. PLUGGING CORE HOLES - THE CORE HOLES SHALL BE PLUGGED AND SEALED BY THE MANUFACTURER IN A MANNER SUCH THAT THE ELEMENTS WILL MEET ALL OF THE TEST REQUIREMENTS OF THIS SPECIFICATION. PRECAST ELEMENTS SO SEALED SHALL BE CONSIDERED SATISFACTORY FOR USE.
         6.1.4.3. TEST EQUIPMENT - EVERY MANUFACTURER FURNISHING PRECAST ELEMENTS UNDER THIS SPECIFICATION SHALL FURNISH ALL FACILITIES AND PERSONNEL NECESSARY TO CARRY OUT THE TEST REQUIRED.
   6.2. INSPECTION - THE QUALITY OF MATERIALS, THE PROCESS OF MANUFACTURE, AND THE FINISHED PRECAST ELEMENTS SHALL BE SUBJECT TO INSPECTION BY THE PURCHASER.

7. JOINTS
   THE BRIDGE UNITS SHALL BE PRODUCED WITH FLAT BUTT ENDS. THE ENDS OF THE BRIDGE UNITS SHALL BE SUCH THAT WHEN THE SECTIONS ARE LAID TOGETHER THEY WILL MAKE A CONTINUOUS LINE WITH A SMOOTH INTERIOR FREE OF APPRECIABLE IRREGULARITIES, ALL COMPATIBLE WITH THE PERMISSIBLE VARIATIONS IN SECTION 5, ABOVE. THE JOINT WIDTH BETWEEN ADJACENT PRECAST UNITS SHALL NOT EXCEED ¾".

8. WORKMANSHIP/ FINISH
   THE BRIDGE UNITS, WINGWALLS, HEADWALLS AND FOUNDATION UNITS SHALL BE SUBSTANTIALLY FREE OF FRACTURES. THE ENDS OF THE BRIDGE UNITS SHALL BE NORMAL TO THE WALLS AND CENTERLINE OF THE BRIDGE SECTION, WITHIN THE LIMITS OF THE VARIATIONS GIVEN IN SECTION 5, ABOVE, EXCEPT WHERE BEVELED ENDS ARE SPECIFIED. THE FACES OF THE WINGWALLS AND HEADWALLS SHALL BE PARALLEL TO EACH OTHER, WITHIN THE LIMITS OF VARIATIONS GIVEN IN SECTION 5, ABOVE. THE SURFACE OF THE PRECAST ELEMENTS SHALL BE A SMOOTH STEEL FORM OR TROWELED SURFACE. TRAPPED AIR POCKETS CAUSING SURFACE DEFECTS SHALL BE CONSIDERED AS PART OF A SMOOTH, STEEL FORM FINISH.

9. REPAIRS
   PRECAST ELEMENTS MAY BE REPAIRED, IF NECESSARY, BECAUSE OF IMPERFECTIONS IN MANUFACTURE OR HANDLING DAMAGE AND WILL BE ACCEPTABLE IF, IN THE OPINION OF THE PURCHASER, THE REPAIRS ARE SOUND, PROPERLY FINISHED AND CURED, AND THE REPAIRED SECTION CONFORMS TO THE REQUIREMENTS OF THIS SPECIFICATION.

10. REJECTION
    THE PRECAST ELEMENTS SHALL BE SUBJECT TO REJECTION ON ACCOUNT OF ANY OF THE SPECIFICATION REQUIREMENTS. INDIVIDUAL PRECAST ELEMENTS MAY BE REJECTED BECAUSE OF ANY OF THE FOLLOWING:
    10.1. FRACTURES OR CRACKS PASSING THROUGH THE WALL, EXCEPT FOR A SINGLE END CRACK THAT DOES NOT EXCEED ONE HALF THE THICKNESS OF THE WALL.
    10.2. DEFECTS THAT INDICATE PROPORTIONING, MIXING, AND MOLDING NOT IN COMPLIANCE WITH SECTION 4 OF THESE SPECIFICATIONS.
    10.3. HONEYCOMBED OR OPEN TEXTURE.
    10.4. DAMAGED ENDS, WHERE SUCH DAMAGE WOULD PREVENT MAKING A SATISFACTORY JOINT.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 6-27-19
Chief, Development Engineering Division — Date 6.24.19

11/3/19

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CONTECH® ENGINEERED SOLUTIONS LLC
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DES. JMF | DRN. TRL | CHK. XXX

DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36225, EXPIRATION DATE: AUGUST 19,2020.

SPECIFICATIONS

WESTMOUNT – PHASE 3
LOTS 172–264, OPEN SPACE LOTS 265–292
AND NON–BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON–BUILDABLE BULK PARCEL D

ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1/4" = 1'-0"	R-ED	540936-010
DATE	TAX MAP – GRID	SHEET
DEC., 2018	23-6&12	83 OF 92

F 17–001

SPECIFICATIONS FOR MANUFACTURE AND INSTALLATION OF CON/SPAN® O-SERIES BRIDGE SYSTEMS (CONT'D)

11. MARKING
EACH BRIDGE UNIT SHALL BE CLEARLY MARKED BY WATERPROOF PAINT. THE FOLLOWING SHALL BE SHOWN ON THE INSIDE OF THE VERTICAL LEG OF THE BRIDGE SECTION:
BRIDGE SPAN x BRIDGE RISE
DATE OF MANUFACTURE
NAME OR TRADEMARK OF THE MANUFACTURER

12. INSTALLATION PREPARATION
TO ENSURE CORRECT INSTALLATION OF THE PRECAST CONCRETE BRIDGE SYSTEM, CARE AND CAUTION MUST BE EXERCISED IN FORMING THE SUPPORT AREAS FOR BRIDGE UNITS, HEADWALL, AND WINGWALL ELEMENTS. EXERCISING SPECIAL CARE WILL FACILITATE THE RAPID INSTALLATION OF THE PRECAST COMPONENTS.

12.1. FOOTINGS
DO NOT OVER EXCAVATE FOUNDATIONS UNLESS DIRECTED BY SITE SOIL ENGINEER TO REMOVE UNSUITABLE SOIL.

THE SITE SOILS ENGINEER SHALL CERTIFY THAT THE BEARING CAPACITY MEETS OR EXCEEDS THE FOOTING DESIGN REQUIREMENTS, PRIOR TO THE CONTRACTOR POURING OF THE FOOTINGS.

THE BRIDGE UNITS AND WINGWALLS SHALL BE INSTALLED ON EITHER PRECAST OR CAST-IN-PLACE CONCRETE FOOTINGS. THE SIZE AND ELEVATION OF THE FOOTINGS SHALL BE AS DESIGNED BY THE ENGINEER. A KEYWAY SHALL BE FORMED IN THE TOP SURFACE OF THE BRIDGE FOOTING AS SPECIFIED ON THE PLANS. NO KEYWAY IS REQUIRED IN THE WINGWALL FOOTINGS, UNLESS OTHERWISE SPECIFIED ON THE PLANS.

THE FOOTINGS SHALL BE GIVEN A SMOOTH FLOAT FINISH AND SHALL REACH A COMPRESSIVE STRENGTH OF 2,000 PSI BEFORE PLACEMENT OF THE BRIDGE AND WINGWALL ELEMENTS. BACKFILLING SHALL NOT BEGIN UNTIL THE FOOTING HAS REACHED THE FULL DESIGN COMPRESSIVE STRENGTH.

THE FOOTING SURFACE SHALL BE CONSTRUCTED IN ACCORDANCE WITH GRADES SHOWN ON THE PLANS. WHEN TESTED WITH A 10'-0" STRAIGHT EDGE, THE SURFACE SHALL NOT VARY MORE THAN ¼" IN 10'-0".

IF A PRECAST CONCRETE FOOTING IS USED, THE CONTRACTOR SHALL PREPARE A 4" THICK BASE LAYER OF COMPACTED GRANULAR MATERIAL THE FULL WIDTH OF THE FOOTING PRIOR TO PLACING THE PRECAST FOOTING.

THE FOUNDATIONS FOR PRECAST CONCRETE BRIDGE ELEMENTS AND WINGWALLS MUST BE CONNECTED BY REINFORCEMENT TO FORM ONE MONOLITHIC BODY. EXPANSION JOINTS SHALL NOT BE USED.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONSTRUCTION OF THE FOUNDATIONS PER THE PLANS AND SPECIFICATIONS.

13. INSTALLATION
13.1. GENERAL - THE INSTALLATION OF THE PRECAST CONCRETE ELEMENTS SHALL BE AS EXPLAINED IN THE PUBLICATION CON/SPAN BRIDGE SYSTEMS INSTALLATION HANDBOOK.
13.1.1. LIFTING - IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT A CRANE OF THE CORRECT LIFTING CAPACITY IS AVAILABLE TO HANDLE THE PRECAST CONCRETE UNITS. THIS CAN BE ACCOMPLISHED BY USING THE WEIGHTS GIVEN FOR THE PRECAST CONCRETE COMPONENTS AND BY DETERMINING THE LIFTING REACH FOR EACH CRANE UNIT. SITE CONDITIONS MUST BE CHECKED WELL IN ADVANCE OF SHIPPING TO ENSURE PROPER CRANE LOCATION AND TO AVOID ANY LIFTING RESTRICTIONS. THE LIFT ANCHORS OR HOLES PROVIDED IN EACH UNIT ARE THE ONLY MEANS TO BE USED TO LIFT THE ELEMENTS. THE PRECAST CONCRETE ELEMENTS MUST NOT BE SUPPORTED OR RAISED BY OTHER MEANS THAN THOSE GIVEN IN THE MANUALS AND DRAWINGS WITHOUT WRITTEN APPROVAL FROM CONTECH® ENGINEERED SOLUTIONS.
13.1.2. CONSTRUCTION EQUIPMENT WEIGHT RESTRICTIONS - IN NO CASE SHALL EQUIPMENT OPERATING IN EXCESS OF THE DESIGN LOAD (HL-93) BE PERMITTED OVER THE BRIDGE UNITS UNLESS APPROVED BY CONTECH® ENGINEERED SOLUTIONS.
13.1.2.1. IN THE IMMEDIATE AREA OF THE BRIDGE UNITS, THE FOLLOWING RESTRICTIONS FOR THE USE OF HEAVY CONSTRUCTION MACHINERY DURING BACKFILLING OPERATIONS APPLY:
- NO CONSTRUCTION EQUIPMENT SHALL CROSS THE BARE PRECAST CONCRETE BRIDGE UNIT.
- AFTER THE COMPACTED FILL LEVEL HAS REACHED A MINIMUM OF 4" OVER THE CROWN OF THE BRIDGE, CONSTRUCTION EQUIPMENT WITH A WEIGHT OF LESS THAN 10 TONS MAY CROSS THE BRIDGE.
- AFTER THE COMPACTED FILL LEVEL HAS REACHED A MINIMUM OF 1'-0" OVER THE CROWN OF THE BRIDGE, CONSTRUCTION EQUIPMENT WITH A WEIGHT OF LESS THAN 30 TONS MAY CROSS THE BRIDGE.
- AFTER THE COMPACTED FILL LEVEL HAS REACHED THE DESIGN COVER, OR 2'-0" MINIMUM, OVER THE CROWN OF THE PRECAST CONCRETE BRIDGE, CONSTRUCTION EQUIPMENT WITHIN THE DESIGN LOAD LIMITS FOR THE ROAD MAY CROSS THE PRECAST CONCRETE BRIDGE.

13.2. LEVELING PAD/SHIMS - THE BRIDGE UNITS AND WINGWALLS SHALL BE SET ON HARDBOARD SHIMS CONFORMING TO ASTM D1037 OR PLASTIC SHIMS (DAYTON SUPERIOR P-80, P-81 OR APPROVED EQUAL) MEASURING 5" x 5", MINIMUM, UNLESS SHOWN OTHERWISE ON THE PLANS. A MINIMUM GAP OF ½" SHALL BE PROVIDED BETWEEN THE FOOTING AND THE BOTTOM OF THE BRIDGE'S VERTICAL LEGS OR THE BOTTOM OF THE WINGWALL. ALSO, A SUPPLY OF ¼", ½" AND ⅛" THICK HARDBOARD OR PLASTIC SHIMS FOR VARIOUS SHIMMING PURPOSES SHALL BE ON SITE.
13.3• PLACEMENT OF BRIDGE UNITS - THE BRIDGE UNITS SHALL BE PLACED AS SHOWN ON THE ENGINEER'S PLAN DRAWINGS. SPECIAL CARE SHALL BE TAKEN IN SETTING THE ELEMENTS TO THE TRUE LINE AND GRADE. THE JOINT WIDTH BETWEEN ADJACENT PRECAST UNITS SHALL NOT EXCEED ¾".

13.4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE STRUCTURE SPAN DURING ALL PHASES OF INSTALLATION. DUE TO THE ARCH SHAPE, BRIDGE ELEMENTS WILL TEND TO SPREAD UNDER SELF-WEIGHT. IT IS IMPERATIVE THAT ANY LATERAL SPREADING OF THE BRIDGE ELEMENTS BE AVOIDED DURING AND AFTER THEIR PLACEMENT. GENERALLY, HORIZONTAL CABLE TIES OR TIE RODS ARE SHIPPED IN THE LARGER BRIDGE ELEMENTS TO ASSIST IN PREVENTING THIS SPREADING. CABLE TIES/TIE RODS SHALL NOT BE REMOVED UNTILL BRIDGE UNITS ARE GROUTED AND GROUT HAS CURED. IT IS RECOMMENDED THAT TEMPORARY HARDWOOD BLOCKS BE USED IN CONJUNCTION WITH THE CABLE TIES/TIE RODS TO MAINTAIN SPAN. IF, HOWEVER, DUE TO SITE RESTRICTIONS, THESE CABLE TIES/TIE RODS MUST BE REMOVED PRIOR TO PLACEMENT OF THE BRIDGE ELEMANTS, THE CONTRACTOR MUST NOTIFY CONTECH (MANUFACTURER) AND REQUEST A SUGGESTED INSTALLATION PROCEDURE.

IN ADDITION, IF THE CABLE TIES/TIE RODS MUST BE REMOVED PRIOR TO SETTING ARCH UNITS, THE FOLLOWING QUALITY CONTROL PROCEDURE MUST BE FOLLOWED:
1) FIND "MEASURED SPAN" UPON ARCH UNIT'S DELIVERY TO SITE, PRIOR TO LIFTING FROM TRUCK AND REMOVING CABLE TIES/TIE RODS. "MEASURED SPAN" SHALL BE THE AVERAGE OF (3) SPAN MEASUREMENTS ALONG THE LAY LENGTH OF THE ARCH UNIT.
2) AFTER SETTING OF BRIDGE UNIT ON THE FOUNDATION, VERIFY THE SPAN. THIS "INSTALLED SPAN MEASUREMENT" SHALL NOT EXCEED THE MAXIMUM OF:
A) THE NOMINAL SPAN +½" OR
B) THE "MEASURED SPAN"
IF THE "INSTALLED SPAN MEASUREMENT" EXCEEDS THIS AMOUNT, THE ARCH UNIT SHALL BE LIFTED AND RE-SET UNTIL THE "INSTALLED SPAN MEASUREMENT" MEETS THE LIMITS.

13.5. PLACEMENT OF WINGWALLS, HEADWALLS AND FOUNDATION UNITS - THE WINGWALLS, HEADWALLS AND FOUNDATIONS SHALL BE PLACED AS SHOWN ON THE PLAN DRAWINGS. SPECIAL CARE SHALL BE TAKEN IN SETTING THE ELEMENTS TO THE TRUE LINE AND GRADE.
13.6. WATERPROOFING/JOINT PROTECTION AND SUBSURFACE DRAINAGE
13.6.1. EXTERNAL PROTECTION OF JOINTS - THE BUTT JOINT MADE BY TWO ADJOINING BRIDGE UNITS SHALL BE COVERED WITH A ⅞" x 1⅜" PREFORMED BITUMINOUS JOINT SEALANT AND A MINIMUM OF A 9" WIDE JOINT WRAP. THE SURFACE SHALL BE FREE OF DIRT BEFORE APPLYING THE JOINT MATERIAL. A PRIMER COMPATIBLE WITH THE JOINT WRAP TO BE USED SHALL BE APPLIED FOR A MINIMUM WIDTH OF 9" ON EACH SIDE OF THE JOINT. THE EXTERNAL WRAP SHALL BE CS212 BY CONCRETE SEALANTS INC., EZ-WRAP RUBBER BY PRESS-SEAL GASKET CORPORATION, SEAL WRAP BY MAR MAC MANUFACTURING CO. INC. OR APPROVED EQUAL. THE JOINT SHALL BE COVERED CONTINUOUSLY FROM THE BOTTOM OF ONE BRIDGE SECTION LEG, ACROSS THE TOP OF THE BRIDGE AND TO THE OPPOSITE BRIDGE SECTION LEG. ANY LAPS THAT RESULT IN THE JOINT WRAP SHALL BE A MINIMUM OF 6" LONG WITH THE OVERLAP RUNNING DOWNHILL.
13.6.2. IN ADDITION TO THE JOINTS BETWEEN BRIDGE UNITS, THE JOINT BETWEEN THE END BRIDGE UNIT AND THE HEADWALL SHALL ALSO BE SEALED AS DESCRIBED ABOVE. IF PRECAST WINGWALLS ARE USED, THE JOINT BETWEEN THE END BRIDGE UNIT AND THE WINGWALL SHALL BE SEALED WITH A 2'-0" STRIP OF FILTER FABRIC. ALSO, IF LIFT HOLES ARE FORMED IN THE BRIDGE UNITS, THEY SHALL BE PRIMED AND COVERED WITH A 9" x 9" SQUARE OF JOINT WRAP.
13.6.3. DURING THE BACKFILLING OPERATION, CARE SHALL BE TAKEN TO KEEP THE JOINT WRAP IN ITS PROPER LOCATION OVER THE JOINT.
13.6.4. SUBSOIL DRAINAGE SHALL BE AS DIRECTED BY THE ENGINEER.

13.7. GROUTING
13.7.1. GROUTING SHALL NOT BE PERFORMED WHEN TEMPERATURES ARE EXPECTED TO GO BELOW 35° FOR A PERIOD OF 72 HOURS. GROUTING SHOULD BE COMPLETED AS SOON AS PRACTICAL AFTER PRECAST ARCHES HAVE BEEN INSTALLED. FILL THE BRIDGE-FOUNDATION KEYWAY WITH CEMENT GROUT (PORTLAND CEMENT AND WATER OR CEMENT MORTAR COMPOSED OF PORTLAND CEMENT, SAND AND WATER) WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI. VIBRATE AS REQUIRED TO ENSURE THAT THE ENTIRE KEY AROUND THE BRIDGE ELEMENT IS COMPLETELY FILLED. IF BRIDGE ELEMENTS HAVE BEEN SET WITH TEMPORARY TIES (CABLES, BARS, ETC.) GROUT MUST ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI BEFORE TIES MAY BE REMOVED.
13.7.2. ALL GROUT SHALL HAVE A MAXIMUM AGGREGATE SIZE OF ¼".
13.7.3. LIFTING AND ERECTION ANCHOR RECESSES SHALL BE FILLED WITH GROUT.
13.7.4. AFTER GROUT HAS REACHED ITS DESIGN STRENGTH THE TEMPORARY HARDWOOD WEDGES SHALL BE REMOVED AND THEIR HOLES FILLED WITH GROUT.

13.8. BACKFILL
13.8.1. DO NOT PERFORM BACKFILLING DURING WET OR FREEZING WEATHER.
13.8.2. NO BACKFILL SHALL BE PLACED AGAINST ANY STRUCTURAL ELEMENTS UNTIL THEY HAVE BEEN APPROVED BY THE ENGINEER.
13.8.3. BACKFILL SHALL BE CONSIDERED AS ALL REPLACED EXCAVATION AND NEW EMBANKMENT ADJACENT TO THE PRECAST CONCRETE ELEMENTS. THE PROJECT CONSTRUCTION AND MATERIAL SPECIFICATIONS, WHICH INCLUDE THE SPECIFICATIONS FOR EXCAVATION FOR STRUCTURES AND ROADWAY EXCAVATION AND EMBANKMENT CONSTRUCTION, SHALL APPLY EXCEPT AS
• MODIFIED IN THIS SECTION.
13.8.4. BACKFILL ZONES:
• IN-SITU SOIL
ZONE A: CONSTRUCTED EMBANKMENT OR OVERFILL.
• ZONE B: FILL THAT IS DIRECTLY ASSOCIATED WITH PRECAST CONCRETE BRIDGE INSTALLATION.
ZONE C: ROAD STRUCTURE.
13.8.5. REQUIRED BACKFILL PROPERTIES
13.8.5.1. IN-SITU SOIL - NATURAL GROUND IS TO BE SUFFICIENTLY STABLE TO ALLOW EFFECTIVE SUPPORT TO THE PRECAST CONCRETE BRIDGE UNITS. AS A GUIDE, THE EXISTING NATURAL GROUND SHOULD BE OF SIMILAR QUALITY AND DENSITY TO ZONE B MATERIAL FOR MINIMUM LATERAL DIMENSION OF ONE BRIDGE SPAN OUTSIDE OF THE BRIDGE FOOTING.
13.8.5.2. ZONE A - ZONE A REQUIRES FILL MATERIAL WITH SPECIFICATIONS AND COMPACTING PROCEDURES EQUAL TO THAT FOR NORMAL ROAD EMBANKMENTS.
13.8.5.3. ZONE B - GENERALLY, SOILS SHALL BE REASONABLY FREE OF ORGANIC MATTER, AND, NEAR CONCRETE SURFACES, FREE OF STONES LARGER THAN 3" IN DIAMETER SEE CHARTS FOR DETAILED DESCRIPTIONS OF ACCEPTABLE SOILS.
13.8.5.4. ZONE C - ZONE C IS THE ROAD SECTION OF GRAVEL, ASPHALT OR CONCRETE BUILT IN COMPLIANCE WITH LOCAL ENGINEERING PRACTICES.
13.8.5.5. GEOTECHNICAL ENGINEER SHALL REVIEW GRADATIONS OF ALL INTERFACING MATERIALS AND, IF NECESSARY, RECOMMEND GEOTEXTILE FILTER FABRIC (PROVIDED BY CONTRACTOR)

13.8.6. PLACING AND COMPACTING BACKFILL
DUMPING FOR BACKFILLING IS NOT ALLOWED ANY NEARER THAN 3'-0" FROM THE BRIDGE LEG.

THE FILL MUST BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE MAXIMUM DIFFERENCE IN THE SURFACE LEVELS OF THE FILL ON OPPOSITE SIDES OF THE BRIDGE MUST NOT EXCEED 2'-0".

THE FILL BEHIND WINGWALLS MUST BE PLACED AT THE SAME TIME AS THAT OF THE BRIDGE FILL. IT MUST BE PLACED IN PROGRESSIVELY PLACED HORIZONTAL LAYERS NOT EXCEEDING 8" PER LAYER.

THE BACKFILL OF ZONE B SHALL BE COMPACTED TO A MINIMUM DENSITY OF 95% OF THE STANDARD PROCTOR, AS REQUIRED BY AASHTO T-99.

SOIL WITHIN 1'-0" OF CONCRETE SURFACES SHALL BE HAND-COMPACTED. ELSEWHERE, USE OF ROLLERS IS ACCEPTABLE. IF VIBRATING ROLLER-COMPACTORS ARE USED, THEY SHALL NOT BE STARTED OR STOPPED WITHIN ZONE B AND THE VIBRATION FREQUENCY SHOULD BE AT LEAST 30 REVOLUTIONS PER SECOND.

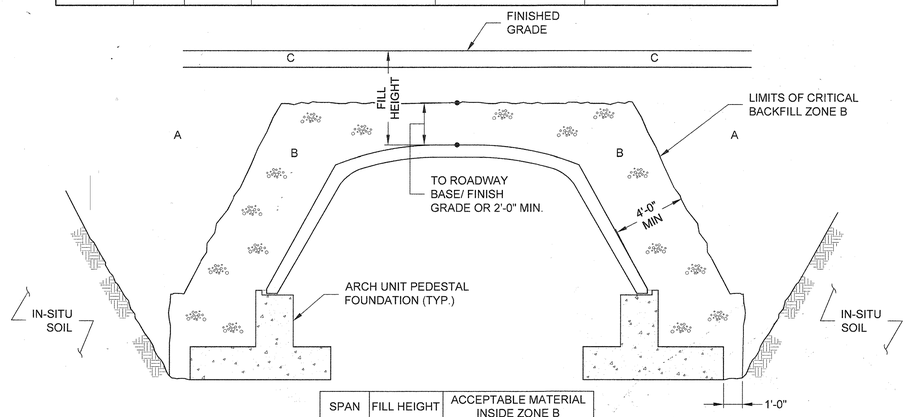
THE BACKFILL MATERIAL AND COMPACTING BEHIND WINGWALLS SHALL SATISFY THE CRITERIA FOR THE BRIDGE BACKFILL, ZONE B.

BACKFILL AGAINST A WATERPROOFED SURFACE SHALL BE PLACED CAREFULLY TO AVOID DAMAGE TO THE WATERPROOFING MATERIAL.
13.8.7. BRIDGE UNITS
FOR FILL HEIGHTS OVER 12 FEET (AS MEASURED FROM TOP CROWN OF BRIDGE TO FINISHED GRADE), NO BACKFILLING MAY BEGIN UNTIL A BACKFILL COMPACTION TESTING PLAN HAS BEEN COORDINATED WITH AND APPROVED BY CONTECH® ENGINEERED SOLUTIONS.
13.8.8. WINGWALLS
BACKFILL IN FRONT OF WINGWALLS SHALL BE CARRIED TO GROUND LINES SHOWN IN THE PLANS.
13.8.9. MONITORING
THE CONTRACTOR SHALL CHECK SETTLEMENTS AND HORIZONTAL DISPLACEMENT OF FOUNDATION TO ENSURE THAT THEY ARE WITHIN THE ALLOWABLE LIMIT PROVIDED BY THE ENGINEER. THESE MEASUREMENTS SHOULD GIVE AN INDICATION OF THE SETTLEMENTS AND DEFORMATIONS ALONG THE LENGTH OF THE FOUNDATIONS.

THE FIRST MEASUREMENT SHOULD TAKE PLACE AFTER THE ERECTION OF ALL PRECAST BRIDGE SYSTEM ELEMENTS, A SECOND AFTER COMPLETION OF BACKFILLING, AND A THIRD BEFORE OPENING OF THE BRIDGE TO TRAFFIC. FURTHER MEASUREMENTS MAY BE MADE ACCORDING TO LOCAL CONDITIONS.

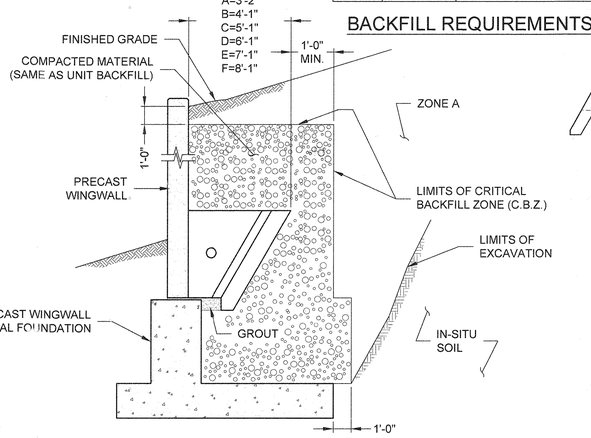
ACCEPTABLE SOILS FOR USE IN ZONE B BACKFILL

TYPICAL USCS MATERIALS	AASHTO GROUP	AASHTO SUBGROUP	PERCENT PASSING US SIEVE NO. #10	#40	#200	CHARACTER OF FRACTION PASSING NO. 40 SIEVE LIQUID LIMIT	PLASTICITY INDEX	SOIL DESRIPTION
GW, GP, SP	A1	A-1a	50 MAX	30 MAX	15 MAX		6 MAX	LARGELY GRAVEL BUT CAN INCLUDE SAND AND FINES
GM, SW, SP, SM		A-1b		50 MAX	25 MAX		6 MAX	GRAVELLY SAND OR GRADED SAND, MAY INCLUDE FINES
GM, SM, ML, SP, GP	A2	A-2-4			35 MAX	40 MAX	10 MAX	SANDS, GRAVELS WITH LOW-PLASTICITY SILT FINES
SC, GC, GM		A-2-5			35 MAX	41 MIN	10 MAX	SANDS, GRAVELS WITH PLASTIC SILT FINES
SP, SM, SW	A3			51 MIN	10 MAX		NON-PLASTIC	FINE SANDS
ML, SM, SC	A4				36 MIN	40 MAX	10 MAX	LOW-COMPRESSIBILTY SILTS

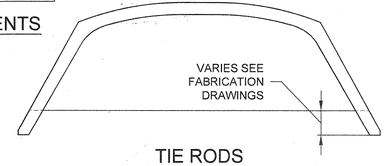


SPAN	FILL HEIGHT	ACCEPTABLE MATERIAL INSIDE ZONE B
≤ 24'-0"	≥ 12'-0"	A1, A3
≤ 24'-0"	< 12'-0"	A1, A2, A3, A4
> 24'-0"	ALL	A1, A3

BACKFILL REQUIREMENTS



WALL BACKFILL REQUIREMENTS



TIE RODS

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 1/29/2019

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 6-27-19
Chief, Development Engineering Division — Date 6.24.19

11/3/19

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DES. JMF | DRN. TRL | CHK. XXX

DATE	REVISION	BY	APP'R.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORPORATION
3500 MANOR LANE
ELLICOTT CITY, MARYLAND 21042
443-367-0422
ATTN.: CAMILLA CARROLL

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I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36225, EXPIRATION DATE: AUGUST 19,2020.

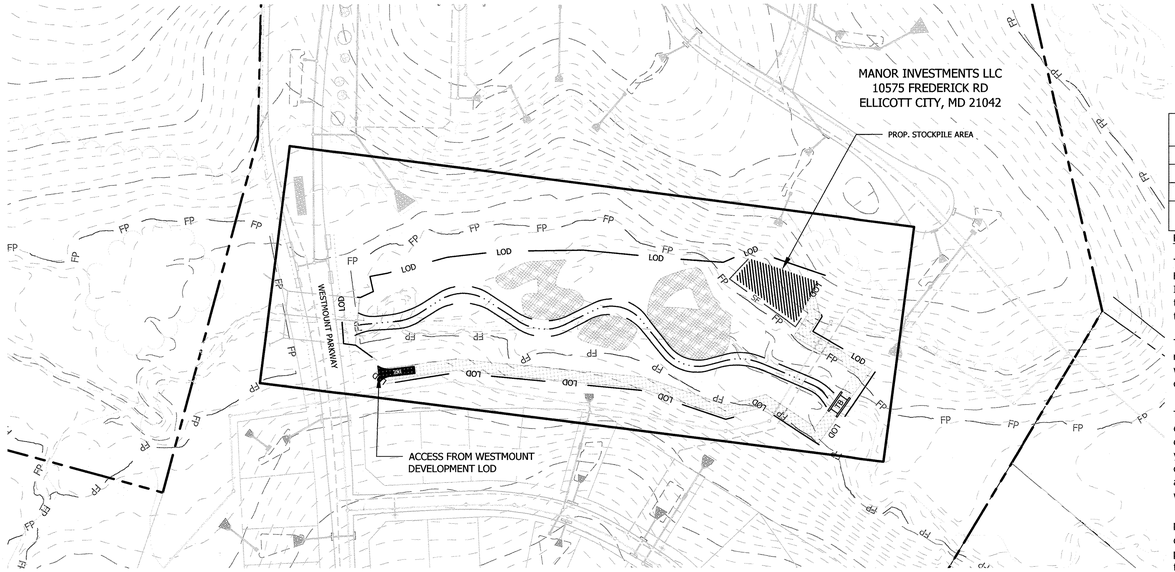
SPECIFICATIONS
WESTMOUNT – PHASE 3
LOTS 172–264, OPEN SPACE LOTS 265–292
AND NON–BUILDABLE BULK PARCELS E & F
A RESUBDIVISION OF NON–BUILDABLE BULK PARCEL D
ELECTION DISTRICT No. 2 — HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1/4" = 1'-0"	R-ED	540936-010
DATE	TAX MAP - GRID	SHEET
DEC., 2018	23-6&12	84 OF 92

F 17-001

WESTMOUNT
PHASE II, III, & IV
STREAM MITIGATION PLAN

10575 FREDERICK ROAD, ELLICOTT CITY, MARYLAND 21042



OVERALL PLAN/KEY SHEET
SCALE: 1" = 100'

0 100 200 Feet

BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS

1. No excess fill, construction material, or debris shall be stockpiled or stored in nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year floodplain.
2. Place materials in a location and manner which does not adversely impact surface or subsurface water flow into or out of nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year floodplain.
3. Do not use the excavated material as backfill if it contains waste metal products, unsightly debris, toxic material, or any other deleterious substance. If additional backfill is required, use clean material free of waste metal products, unsightly debris, toxic material, or any other deleterious substance.
4. Place heavy equipment on mats or suitably operate the equipment to prevent damage to nontidal wetlands, nontidal wetland buffers, waterways, or the 100-year floodplain.
5. Repair and maintain any serviceable structure or fill so there is no permanent loss of nontidal wetlands, nontidal wetland buffers, or waterways, or permanent modification of the 100-year floodplain in excess of that lost under the originally authorized structure or fill.
6. Rectify any nontidal wetlands, wetland buffers, waterways, or 100-year floodplain temporarily impacted by any construction.
7. All stabilization in the nontidal wetland and nontidal wetland buffer shall consist of the following species: Annual Ryegrass (Lolium multiflorum), Millet (Setaria italica), Barley (Hordeum sp.), Oats (Uniola sp.), and/or Rye (Secale cereale). These species will allow for the stabilization of the site while also allowing for the voluntary revegetation of natural wetland species. Other non-persistent vegetation may be acceptable, but must be approved by the Nontidal Wetlands and Waterways Division. **Kentucky 31 fescue shall not be utilized in wetland or buffer areas.** The area should be seeded and mulched to reduce erosion after construction activities have been completed.
8. After installation has been completed, make post-construction grades and elevations the same as the original grades and elevations in temporarily impacted areas.
9. To protect aquatic species, in-stream work is prohibited as determined by the classification of the stream:

Use IV waters: In-stream work shall not be conducted during the period March 1 through May 31, inclusive, during any year.

10. Stormwater runoff from impervious surfaces shall be controlled to prevent the washing of debris into the waterway.
11. Culverts shall be constructed and any riprap placed so as not to obstruct the movement of aquatic species, unless the purpose of the activity is to impound water.
12. A dewatering pump will be utilized in conjunction with a dirt bag (ESC Sheet 4) to remove standing water in the project area during construction. The dirt bag will be placed on a vegetated area a sufficient distance from subject reach so that any sediment leaving the dirt bag has time/distance to settle out before reaching the waterway.

SEDIMENT CONTROL NOTES

1. Refer to "2011 Maryland Standards and Specifications for Soil Erosion and Sediment controll" for standard details and detailed specifications of each practice specified herein.
2. With the approval of the sediment control inspector, minor field adjustments can and will be made to insure the control of any sediment. Changes in sediment control practices require prior approval of the sediment control inspector and the Howard Soil Conservation District.
3. At the end of each working day, all sediment control practices will be inspected and left in operational condition.
4. Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within:
   a.) Three calendar days as to the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes, and all slopes greater than three horizontal to one vertical (3:1), and
   b.) Seven days as to all other disturbed or graded areas on the project site which will remain idle over fourteen days.
5. Any change to the grading proposed on this plan requires resubmission to Howard Soil Conservation District for approval.
6. Dust control will be provided for all disturbed areas. Refer to "2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control", pg. H-30-1, for acceptable methods and specifications for dust control.
7. Any variations from the sequence of operations stated on this plan require the approval of the sediment control inspector and the Howard Soil Conservation District prior to the initiation of the change.
8. Excess cut or borrow material shall go to, or come from, respectively, a site with an open grading permit or approved agricultural ground.
9. The following item may be used as applicable: refer to "Maryland's Guidelines to Waterway Construction" by the Water Management Administration of the Maryland Department of the Environment, revised November, 2000, for standard details and detailed specifications of each practice specified herein for waterway construction.
10. All work is to be completed "in the dry", see sequence of operations. After rainfall events during construction, the site is to be fully dewatered prior to proceeding with grading.
11. Ingress and egress to the site will be accessed off of the construction LOD from within the development area.
12. The contractor must adhere to "Best Management Practices for Working in Nontidal Wetlands, Wetland Buffers, Waterways, and the 100-year Floodplain".

SEQUENCE OF CONSTRUCTION

1. Clear and grub for the installation of sediment and erosion control measures or devices (1 Day).
2. Install stabilized construction entrances and all sediment control devices, notify Howard County CID inspector upon completion of said installation (1 Day).
3. With the approval of Howard County CID inspector, clear and grub for in-stream work. The stream is in the Little Patuxent River watershed, designated as Use IV by the Maryland Department of the Environment. No in-stream work shall be conducted during the period March 1 through May 31 (1 Day).
4. Install pump around practices in the Unnamed Tributary to the Little Patuxent River. All pump around diversions shall be set up and running before in-stream work will be permitted to start. See Pump-Around Note, this Sheet (1 Day).
5. Begin stream work starting at the upstream end of the project working downstream. Complete installation of all in-stream structures. Remove any accumulated sediment in the stream channel at the end of each working day and prior to the removal of the pump around practice (Approximately 40 Days).
6. Stabilize all disturbed areas at the end of each working day (each day for duration of the project, approximately 40 days).
7. Once stream restoration is complete, seed and stabilize any remaining work areas (7 Day).
8. Install plant material during appropriate planting dates (10 Day).
9. Upon stabilization of site with established vegetation and with permission of the Howard County CID inspector, remove sediment control measures and stabilize those areas disturbed by this process, including any spoils areas (1 Day).

GENERAL NOTES

1. This plan has been prepared to provide approximately 743 linear feet of stream restoration on the Manor Investments LLC property, located off Frederick Road in Howard County, Maryland. This project is mitigation for 700 linear feet of impact for the Westmount Development.
2. Contours were obtained from topography by Gutschick, Little, and Weber (GLW) Engineering as part of a larger survey for a development plan in 2014 and depicts field run 2-ft topo. Elevations were verified on October 2, 2018, using an existing manhole (Elev. 391.11) invert as the benchmark.
3. County grading permit (included in Phase III grading permit for F-17-001), and other necessary approvals (ACOE permit #201661972, E&S permit #EP-19-19, NPDES/NOI #MDRCN04O9) and permits must be obtained prior to start of construction.
4. The Contractor shall notify Ecotone, Inc. and the landowner's representative at least two (2) weeks prior to start of grading operations within the project areas.
5. Contractor shall notify owner and Howard County CIS inspector at least 48 hours prior to beginning any work and the Maryland Department of the Environment Inspection and Compliance Program (410 537-3510) at least 5 days prior to beginning any work. Miss Utility must be contacted at least 72 hours prior to beginning work. A pre-construction meeting is required with the landowner, contractor, and Howard County CID inspector prior to construction starting.
6. The Contractor is responsible for the location of all underground utilities prior to the start of construction. Any damages to utilities as a result of grading or other activities will be the sole responsibility of the Contractor and shall be repaired at the Contractors expense.
7. Access to the restoration areas shall be from the Development Construction LOD (by others/NIC) as indicated hereon.
8. The Contractor will be responsible for any damage to private property, including but not limited to fences and private roads resulting from the execution of this contract. Repairs for any such damage will be made at the Contractors expense to the satisfaction of the private property owner and Ecotone, Inc.
9. All machinery, equipment and supplies for the project shall be stored in an upland location, preferably the staging area shown on this plan, so as not to disturb any environmentally sensitive areas or agricultural uses on the site.
10. All rough and finish grading work will be started at the upstream end of the project.
11. Disturb no more area than can be stabilized by the end of each day.
12. Design life of logs and woody debris, used in the design, is estimated to be 10-20 years, vegetation will have time to establish before the wood starts to decompose.
13. Impairment status: This stream and tributaries has the following impairments: *E. coli* (Category 3), chlorides (Category 5), cadmium (Category 2), phosphorus (Category 2), total suspended solids (Category 4a).
14. The project area is not located in a Tier II catchment.

THIS SHEET IS BEING ADDED TO THE PLAN SET AS PART OF REVISION #1 INDICATED ON SHEETS 1 THROUGH 84. THE PURPOSE OF THIS PLAN IS TO PROVIDE INFORMATION NEEDED FOR THE STREAM MITIGATION CONSTRUCTION.

PREPARED FOR: WESTMOUNT DEVELOPMENT CORP.
307 INTERNATIONAL CIRCLE, SUITE 130
HUNT VALLEY, MD 21030
ATTENTION: ROBERT GOODIER

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways MK — Date 05/26/2020

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6/10/2020

Chief, Development Engineering Division — Date 6.8.20

X:\Projects\2017 Projects\17-15-065 - Westmount Stream\CAD\17-15-065-LAYOUT-STREAM_FINAL.dwg SMOREY

HOWARD SOIL CONSERVATION DISTRICT (HSCD) STANDARD SEDIMENT CONTROL NOTES

1. A pre-construction meeting must occur with the Howard County Department of Public Works, Construction Inspection Division (CID), 410-313-1855 after the future LOD and protected areas are marked clearly in the field. A minimum of 48 hour notice to CID must be given at the following stages:
   a. Prior to the start of earth disturbance,
   b. Upon completion of the installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading,
   c. Prior to the start of another phase of construction or opening of another grading unit,
   d. Prior to the removal or modification of sediment control practices.

   Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made. Other related state and federal permits shall be referenced, to ensure coordination and to avoid conflicts with this plan.
2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, and revisions thereto.
3. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization is required within three (3) calendar days as to the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes, and all slopes steeper than 3 horizontal to 1 vertical (3:1); and seven (7) calendar days as to all other disturbed areas on the project site except for those areas under active grading.
4. All disturbed areas must be stabilized within the time period specified above in accordance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for topsoil (Sec. B-4-2), permanent seeding (Sec. B-4-5), temporary seeding (Sec. B-4-4) and mulching (Sec. B-4-3). Temporary stabilization with mulch alone can only be applied between the fall and spring seeding dates if the ground is frozen. Incremental stabilization (Sec. B-4-1) specifications shall be enforced in areas with >15' of cut and/or fill. Stockpiles (Sec. B-4-8) in excess of 20 ft. must be benched with stable outlet. All concentrated flow, steep slope, and highly erodible areas shall receive soil stabilization matting (Sec. B-4-6).
5. All sediment control structures are to remain in place, and are to be maintained in operative condition until permission for their removal has been obtained from the CID.
6. Site Analysis:
   Total Area of Site: 182.0 Acres
   Area Disturbed: 2.9 Acres
   Area to be roofed or paved: 0 Acres
   Area to be vegetatively stabilized: 2.9 Acres
   Total Cut: 1324 Cu. Yds.
   Total Fill: 558 Cu. Yds.
   Offsite waste/borrow area location: WESTMOUNT DEVELOPMENT SITE
7. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
8. Additional sediment control must be provided, if deemed necessary by the CID. The site and all controls shall be inspected by the contractor weekly; and the next day after each rain event. A written report by the contractor, made available upon request, is part of every inspection and should include:
   - Inspection date
   - Inspection type (routine, pre-storm event, during rain event)
   - Name and title of inspector
   - Weather information (current conditions as well as time and amount of last recorded precipitation)
   - Brief description of project's status (e.g., percent complete) and/or current activities
   - Evidence of sediment discharges
   - Identification of plan deficiencies
   - Identification of sediment controls that require maintenance
   - Identification of missing or improperly installed sediment controls
   - Compliance status regarding the sequence of construction and stabilization requirements
   - Photographs
   - Monitoring/sampling
   - Maintenance and/or corrective action performed
   - Other inspection items as required by the General Permit for Stormwater Associated with Construction Activities (NPDES, MDE).
9. Trenches for the construction of utilities is limited to three pipe lengths or that which can and shall be back-filled and stabilized by the end of each workday, whichever is shorter.
10. Any major changes or revisions to the plan or sequence of construction must be reviewed and approved by the HSCD prior to proceeding with construction. Minor revisions may allowed by the CID per the list of HSCD-approved field changes.
11. Disturbance shall not occur outside the L.O.D. A project is to be sequenced so that grading activities begin on one grading unit (maximum acreage of 20 ac. per grading unit) at a time. Work may proceed to a subsequent grading unit when at least 50 percent of the disturbed area in the preceding grading unit has been stabilized and approved by the CID. Unless otherwise specified and approved by the HSCD, no more than 30 acres cumulatively may be disturbed at a given time.
12. Wash water from any equipment, vehicles, wheels, pavement, and other sources must be treated in a sediment basin or other approved washout structure.
13. Topsoil shall be stockpiled and preserved on-site for redistribution onto final grade.
14. All Silt Fence and Super Silt Fence shall be placed on-the-contour, and be imbricated at 25' minimum intervals, with lower ends curled uphill by 2' in elevation.
15. Stream channels must not be disturbed during the following restricted time periods (inclusive):
   - Use I and IP March 1 - June 15
   - Use III and IIIP October 1 - April 30
   - Use IV March 1 - May 31
16. A copy of this plan, the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, and associated permits shall be on-site and available when the site is active.

TEMPORARY STOCKPILE NOTE

If necessary, a temporary stockpile shall be provided within the limits of disturbance. The stockpile shall be located such that any runoff will drain to an existing sediment control device (i.e., super silt fence). The stockpile may not protrude upon nor alter drainage divides to the sediment control device at any time.

MAINTENANCE NOTE

Contractor shall inspect and maintain all sediment control measures and devices after every storm event. Maintenance shall include, but not be limited to the removal of all accumulated sediment. Geotextile fabric shall be replaced as needed to ensure proper function.

PUMP-AROUND NOTE

Pump around shows the maximum extents of stream to be diverted. Actual pump around length will be the length which can be completed in a working day. Pump capacity estimates (2x baseflow (2 cfs)) are estimated to be 1795 gpm. This estimate is subject to change based on seasonal and recent site conditions.

100-YEAR FLOODPLAIN NOTE

FEMA mapped floodplain is present on-site according to FEMA mapping and County GIS data. FIRM panel #24027C0070D. Floodplain study (SP 14-008) was conducted as part of preliminary Westmount development plan.

SOIL STABILIZATION MATTING NOTE

All disturbed areas shall be stabilized with soil stabilization matting immediately after disturbance. See detail on Sheet 6 (ESC Sheet 4).

Owners/Developer Certification:

"I/We hereby certify that any clearing, grading, construction, or development will be done pursuant to this approved erosion and sediment control plan, including inspecting and maintaining controls, and that the responsible personnel involved in the construction project will have a Certificate of Training at a Maryland Department of the Environment (MDE) approved training program for the control on erosion and sediment prior to beginning the project. I certify right-of-entry for periodic on-site evaluation by Howard County, the Howard Soil Conservation District and/or MDE."

Owner's/Developer's Signature — Date 4/27/2020

Robert Goodier V.P. Westmont Dev. LLC
Printed Name & Title

STORM WATER MANAGEMENT DIVISION
BUREAU OF ENVIRONMENTAL SERVICES
6751 COLUMBIA GATEWAY DRIVE, SUITE 514
COLUMBIA, MARYLAND 21046-3143
(410) 313-6444

COORDINATE NOTE
PLAN IS IN NAD 83 MARYLAND STATE PLANE FIPS 1900 COORDINATE SYSTEM.

UTILITY NOTIFICATION

"Ecotone, Inc. makes no representation as to the existence or non-existence of any utilities at the construction site. Shown on these construction drawings are those utilities which have been identified. It is the responsibility of the landowners or operators and contractors to assure themselves that no hazard exists or damage will occur to utilities. It is suggested that Miss Utility be contacted at: 1-800-257-7777."

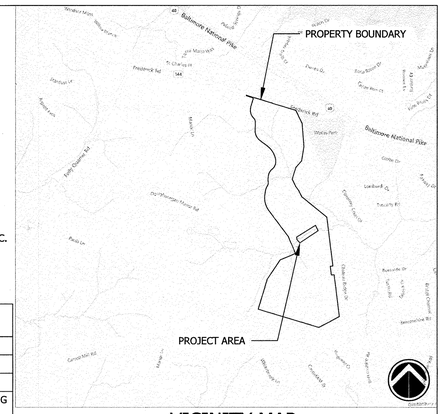
MITIGATION USER INFORMATION
MANOR INVESTMENTS LLC
35500 MANOR LANE
ELLICOTT, MD 21042
HOWARD COUNTY

SITE DATA
ELECTION DISTRICT 7
8 DIGIT HUC: 02060006
MD 8 DIGIT BASIN: 02131105
(LITTLE PATUXENT RIVER)

PARCEL (2) DATA
MANOR INVESTMENTS LLC
DEED REF. 16018/00188
MAP 23, GRID 10, PARCEL 149
EXISTING ZONING: RURAL RESIDENTIAL
SITE ACREAGE: ±182.0 AC.

SITE ANALYSIS
LIMIT OF DISTURBANCE : ±126,844 SF. / 2.9 AC.
NEW IMPERVIOUS AREA: NONE
TOTAL AREA TO BE STABILIZED: 2.4 AC.
APPROXIMATE CUT: 1,324 CY.
APPROXIMATE FILL: 558 CY.
APPROXIMATE NET: 766 CY. (CUT)

RELEVANT PERMIT #'S	
ACOE	#201661972
HSCD E&S	#EP-19-19
NPDES	#MDRCN04OP
GRADING	INCLUDED IN PHASE III GRADING PERMIT FOR F-17-001



VICINITY MAP
SCALE: 1" = 2000'

RESTORATION/DESIGN NARRATIVE

The Unnamed Tributary to Little Patuxent River will be restored between Manor Lane and Centennial Manor Apartments in the Ellicott City area in Howard County, MD. The proposed restoration is offered as mitigation for the proposed impact of 700 feet of stream channel for the Manor Investments LLC development project. The stream channel at the proposed restoration site has been impacted by agriculture and development in the watershed leading to channel incision and bank erosion. The site currently exhibits steep vertical banks exceeding 4 feet throughout portions of the reach.

The proposed mitigation includes habit restoration. In the nature of restoration projects the goal is to protect and enhance natural resources related to the stream and adjacent wetlands. Special attention was given to minimizing the limit of disturbance to exclude portions of existing wetlands to the extent possible for needed grading practices and access. Temporary bridges will be installed to protect and minimize impact to the existing stream channel and wetlands.

The proposed restoration, approximately 743 linear feet of stream directly downstream of the proposed arch bridge, approach will address bank erosion by grading bankfull benches and installing toewood bank protection. In-stream structures will be added to diversify channel profile and deflect water away from eroding banks. Log structures and woody debris, used in the design, are estimated to have a design life between 10-20 years, this will allow vegetation time to establish before the wood starts to decompose. Sinuosity will be added to the naturally straightened channel to add diversity and decrease in channel velocities. The riparian buffer will consist of planted trees and shrubs to provide shade, habitat, and vegetative stabilization. This restoration is part of the proposed 700 linear feet of required mitigation, approximately 710 linear feet of stream will be placed in a protective easement.

During construction natural stream flow will be diverted through the use of pump-around practices and sandbag diversions. Natural flow will be diverted around the current work area to allow for work in the "dry" and natural flow patterns will be present above and below the pump-around practices. Once construction is complete regular maintenance will be done on the site, and if necessary, adaptations will be made to accommodate flow patterns.

The proposed restoration project will not generate any permanent impervious area. Stockpiles and staging areas will be temporary. The use of these stockpiles should be minimal with the majority of the materials needed being supplied on-site. All rock used for in-stream structures should be salvaged or brought in from nearby source.

Work completed on the unnamed tributary to Little Patuxent River will remain inside the staked-out limit of disturbance area that is 2.9 acres. Access to the work area will be from the stabilized construction entrances off the development "by others/NIC" limit of disturbance. A total of two stockpile and staging areas will be added where noted on the cover sheet. Each stockpile and staging area will have appropriate silt fencing at the downward slope to trap any sediment generated within the stockpile and staging area. All stream work will be completed in the "dry." Pump-around practices including sandbag diversions will be implemented to divert water as mentioned above. A filter bag will be used at each pump-around set-up to collect any groundwater from within the construction area.

In the years following construction, the Unnamed Tributary to Little Patuxent River will closely resemble a stable, natural mid-order stream ecosystem with in-stream habitat, stable channel conditions, and an established vegetated buffer. The stream channel will be a C4 stream system with bankfull benches that improve floodplain attenuation. Multiple wooded wetland pockets will be established in the floodplain to help dissipate energy during high flow events and create an abundance of wetland habitat.

Howard SCD Signature Block:

This plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

Howard Soil Conservation District — Date 5/13/20

PROFESSIONAL CERTIFICATION

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 50819, expiration date: 04/17/21.

SIGNATURE — DATE 4/17/20

Design Certification:

"I hereby certify that this plan has been designed in accordance with current Maryland erosion and sediment control laws, regulations, and standards, that it represents a practical and workable plan based on my personal knowledge of the site, and that it was prepared in accordance with the requirements of the Howard Soil Conservation Dsitrict."

Designer's Signature — Date 4/17/20

Amelia S. Reed
Printed Name

MD Registration No. 50819 (P.E. / R.L.S., or R.L.A. (circle one))

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES

CHIEF, STORMWATER MANAGEMENT DIVISION — DATE

STATE OF MARYLAND
AMELIA S. REED
50819
REGISTERED PROFESSIONAL ENGINEER

REVISIONS			
No.	DATE	DESCRIPTION	REV. BY

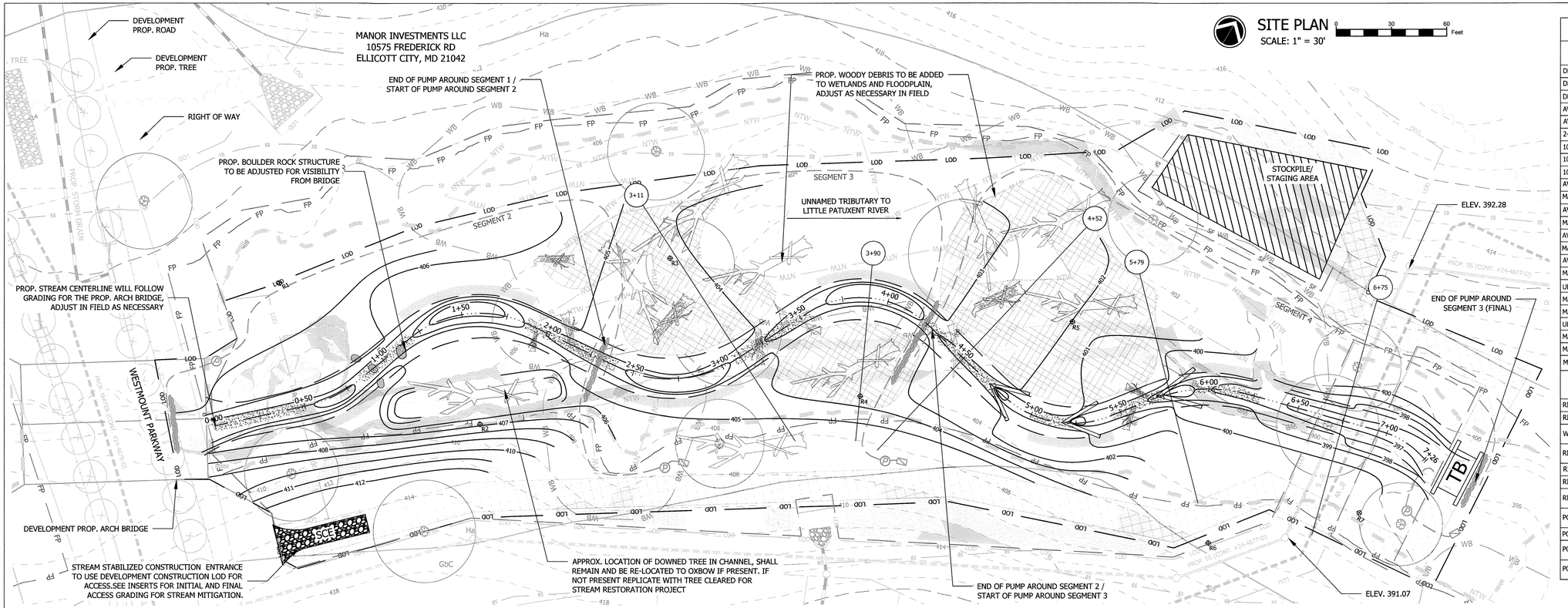
WESTMOUNT
PHASE II, III, & IV
STREAM MITIGATION PLAN COVER SHEET
EROSION & SEDIMENT CONTROL PLAN
10575 FREDERICK ROAD, ELLICOTT CITY , MD 21042

CHECKED BY:	SFM
DESIGNED:	CRH
DRAWN:	SJM
PROJECT No.:	17-15-065
DATE:	4/13/2020
SHEET:	85 of 92

E&S PLAN SHEET 1 OF 5

F 17-001

ecotone
ecological restoration
129 Industry Lane · Forest Hill, Maryland 21050
(410) 420 2600 · www.ecotoneinc.com



DESIGN INFORMATION

HYDROLOGY	REACH STATIONING 0+00 - 4+33 (REACH 1)	REACH STATIONING 4+33 - 7+26 (REACH 2)
DRAINAGE AREA (SQ MI)	0.52	0.52
DESIGNED DISCHARGE (CFS)	51.8	67.5
DESIGNED SLOPE (%)	0.9%	2.0%
AVG DESIGNED VELOCITY (FT/S)	3.4	4.7
AVG DESIGNED SHEAR STRESS (LBS/SF)	0.43	0.87
2-YR DISCHARGE (CFS)	70	72
10-YR DISCHARGE (CFS)	219	245
100-YR DISCHARGE (CFS)	957	957
100-YR FLOODPRONE WIDTH (FT)	133	125
AVG 2-YR VELOCITY (FT/S)	4.0	3.2
MAX 2-YR VELOCITY (FT/S)	5.7	4.4
AVG 2-YR SHEAR STRESS (LBS/SF)	0.61	0.39
MAX 2-YR SHEAR STRESS (LBS/SF)	1.1	0.7
AVG 10-YR VELOCITY (FT/S)	5.4	5.0
MAX 10-YR VELOCITY (FT/S)	7.3	6.4
AVG 10-YR SHEAR STRESS (LBS/SF)	0.91	0.76
MAX 10-YR SHEAR STRESS (LBS/SF)	1.4	1.2
ULTIMATE VEGETATION LINING OF FLOODPLAIN	LONG NATIVE GRASSES	LONG NATIVE GRASSES
MAX PERMISSIBLE SHEAR STRESS (LBS/SF)	1.2-1.7	1.2-1.7
MAX PERMISSIBLE VELOCITY (FT/S)	4-6	4-6
ULTIMATE VEGETATION LINING OF CHANNEL	COIR MAT	COIR MAT
MAX PERMISSIBLE SHEAR STRESS (LBS/SF)	4-8	4-8
MAX PERMISSIBLE VELOCITY (FT/S)	9.5	9.5
MAX D10 (FT)	3.4	2.5

DIMENSIONS	KEY	REACH STATIONING 0+00 - 4+33			REACH STATIONING 4+33 - 7+26		
		MEAN	MIN	MAX	MEAN	MIN	MAX
RIFFLE WIDTH (FT)	A	18.5	17.0	19.5	15.5	14.5	17.0
RIFFLE MEAN DEPTH (FT)	C	0.85	0.8	0.9	0.75	0.7	0.8
WIDTH/DEPTH RATIO	D	22.3	19.3	24.4	20.1	17.9	23.3
RIFFLE CROSS-SECTIONAL AREA (SF)	E	15.4	14.0	16.0	11.9	11.0	12.5
RIFFLE MAX DEPTH (FT)	F	1.0	0.8	1.2	0.9	0.8	1.2
RIFFLE LENGTH (FT)	G	37.0	18.5	55.5	31.0	15.5	46.5
RIFFLE SLOPE (%)	H	2.2	1.1	2.9	2.5	1.5	3.0
POOL WIDTH (FT)	I	22.2	20.4	27.8	18.6	17.1	23.3
POOL CROSS-SECTIONAL AREA (SF)	K	22.5	18.5	25.2	14.9	12.3	16.7
POOL MAX DEPTH (FT)	L	1.9	1.7	2.1	1.7	1.6	1.9
POOL LENGTH (FT)	M	46.3	27.8	83.3	38.8	23.3	69.8

REALIGNMENT CURVE	REALIGNMENT STATIONING	RADIUS OF CURVATURE	RADIUS OF CURVATURE/ MEAN BANKFULL WIDTH
R1	0+51 - 0+83	68 FT	3.2
R2	1+18 - 1+87	60 FT	2.9
R3	2+41 - 3+08	65 FT	3.1
R4	3+54 - 4+25	54 FT	2.6
R5	4+81 - 5+44	55 FT	2.6
R6	5+70 - 6+16	68 FT	3.2
R7	6+97 - 7+21	46 FT	2.9

SHEET NOTES:

1. L.O.D. SHALL BE PERMANENTLY STABILIZED WITH SSM AND SEED MIX, EXCEPT WHERE NOTED AND WHERE AREAS HAVE NOT BEEN DISTURBED.
2. TREES TO REMAIN WITHIN L.O.D. WHERE POSSIBLE.
3. DISTURB NO MORE AREA THAN CAN BE STABILIZED BY THE END OF EACH DAY.
4. THE PROPOSED MULCH USED FOR THE ACCESS PATH IS TO BE DISPERSED ONSITE BY CONTRACTOR.

ACOE PERMIT MONITORING CONDITIONS

Table 1. Success Criteria for Stream Restoration

Level and Category	Parameter	Measurement	Success Criteria	Monitoring Years
1-Hydrology	Flow Classification (Perennial, intermittent, ephemeral)	Visual	Meets or exceeds baseline	PC, 3
2-Hydraulics	NA	NA	NA	NA
3-Geomorphology	Vertical Stability	Longpro/riffle crest elevations	<0.5 ft thalweg degradation from as-built	AB, 3, 5
	Lateral Stability	Photo Documented	Photo Documented	PC, AB,3,5
	Habitat Assessment	EPA RBP habitat form	Exceeds Baseline (PC)	PC, 3, 5
	Vegetative Cover	% cover	>85% cover in LOD	3, 5
4-Water Quality	NA	NA	NA	NA
5-Biology	Invasive Plant Reduction	% cover invasive species in LOD	Less than Baseline	PC, 3, 5

Table 1 showing performance standards for stream restoration as described in Condition 4. AB=As-built, PC=Pre-construction, 1-5 corresponds to the monitoring year following construction, NA = Not applicable.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways MK — Date 05/26/2020

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

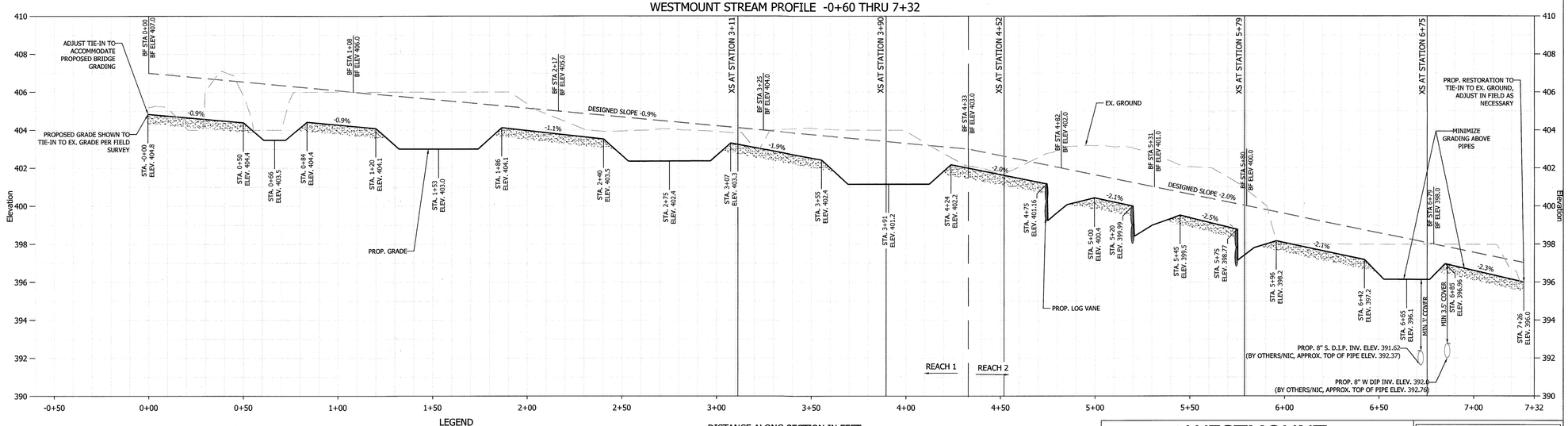
Chief, Division of Land Development — Date 6/10/2020

Chief, Development Engineering Division — Date 6.8.20

THIS SHEET IS BEING ADDED TO THE PLAN SET AS PART OF REVISION #1 INDICATED ON SHEETS 1 THROUGH 84. THE PURPOSE OF THIS PLAN IS TO PROVIDE INFORMATION NEEDED FOR THE STREAM MITIGATION CONSTRUCTION.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORP.
307 INTERNATIONAL CIRCLE, SUITE 130
HUNT VALLEY, MD 21030
ATTENTION: ROBERT GOODIER

WESTMOUNT STREAM PROFILE -0+60 THRU 7+32



DISTANCE ALONG SECTION IN FEET
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'

LEGEND

EX. 15-20% SLOPES
EX. >20% SLOPES
PROPOSED STABILIZED CONSTRUCTION ENTRANCE
PROPOSED MULCH ACCESS PATH
PROPOSED WETLAND
PROPOSED OXBOW WETLAND
PROPOSED STOCKPILE/ STAGING AREA
EX. RIP RAP STORM FACILITY
EX. CONTOURS
EX. STREAM CENTERLINE
EX. TOP OF BANK
EX. FLOODPLAIN - 100 YR DEL. FOR DEVELOPMENT
PROP. FLOODPLAIN - 100 YR
EX. SOIL BOUNDARY
EX. WETLAND
EX. WETLAND BUFFER (25 FT)
EX. STREAM BUFFER
EX. SPECIMEN TREE WITH CRITICAL ROOT ZONE
EX. TREELINE
PROPERTY BOUNDARY
PROPOSED LOG SEGMENT TOEWOOD
STREAM RESTORATION LIMIT OF DISTURBANCE
DEVELOPMENT LIMIT OF DISTURBANCE, BY OTHERS/NIC
PROPOSED SILT FENCE
PROPOSED STREAM CENTERLINE
PROPOSED TOP OF BANK
APPROX. PROPOSED EASEMENT
PROPOSED PUMP AND HOSE PRACTICE
PROPOSED SANDBAG DIKE
PROPOSED FILTER BAG
PROPOSED LOG CROSS VANE
PROPOSED ROCK STRUCTURE
PROPOSED RIFFLE GRADE CONTROL STRUCTURE WITH EMBEDDED WOODY MATERIAL
PROPOSED WOODY DEBRIS
TEMPORARY ACCESS BRIDGE

SOILS LEGEND		
SYMBOL	K FACTOR	SOIL DESCRIPTION
GbB	0.28	Gladstone loam, 3-8% slopes
GhC	0.28	Gladstone loam, 8-15% slopes
GmB	0.37	Glenville silt loam, 3-8% slopes
Ha	0.37	Hatboro-Codorus silt loam, 0-3% slopes
MaD	0.28	Manor loam, 3-8% slopes

STATE OF MARYLAND — ANGELA S. REED — 36819 — PROFESSIONAL ENGINEER — 4/7/20

WESTMOUNT PHASE II, III, & IV

STREAM MITIGATION PLANDESIGN SHEET EROSION & SEDIMENT CONTROL PLAN

10575 FREDERICK ROAD, ELLICOTT CITY , MD 21042

REVISIONS			
No.	DATE	DESCRIPTION	REV. BY

CHECKED BY: SFM
DESIGNED: CRH
DRAWN: SJM
PROJECT No.: 17-15-065
DATE: 4/13/2020
SHEET:

86 of 92

E&S PLAN SHEET 2 OF 5

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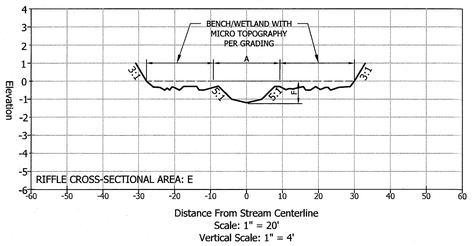
F 17-001

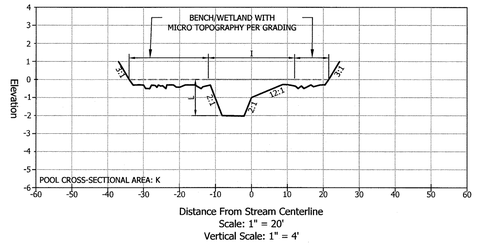
TYPICAL CROSS SECTIONS

TYPICAL REACH 1 RIFFLE CROSS-SECTION



Scale: 1" = 20'
Vertical Scale: 1" = 4'

TYPICAL REACH 1 POOL CROSS-SECTION



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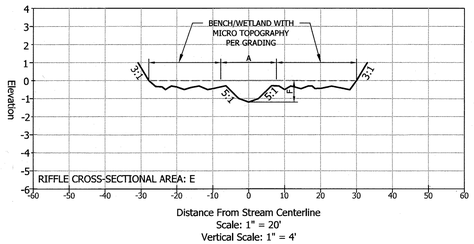

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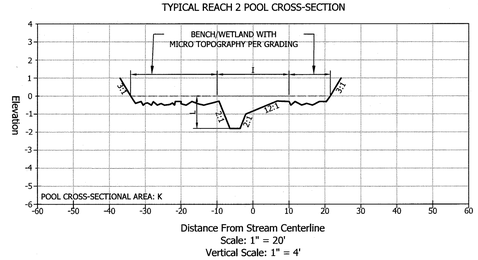
Vertical Scale: 1" = 4'

TYPICAL REACH 2 POOL CROSS-SECTION



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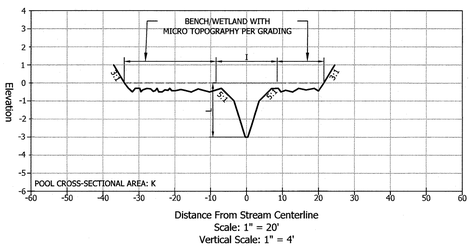
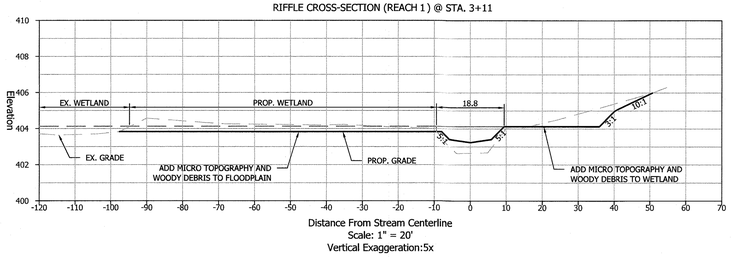
TYPICAL REACH 2 STRUCTURE POOL CROSS-SECTION



Scale: 1" = 20'
Vertical Scale: 1" = 4'

CROSS SECTIONS

RIFFLE CROSS-SECTION (REACH 1) @ STA. 3+11



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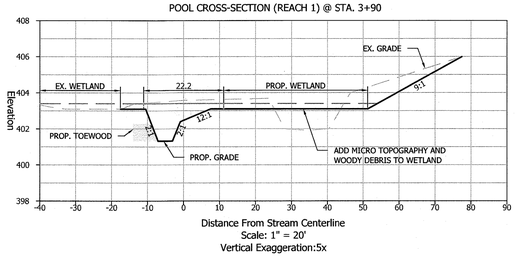
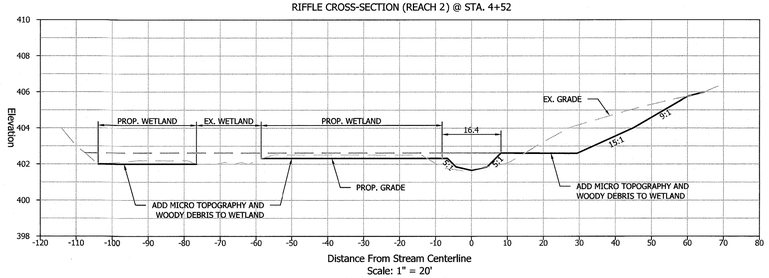
Vertical Exaggeration:5x

POOL CROSS-SECTION (REACH 1) @ STA. 3+90



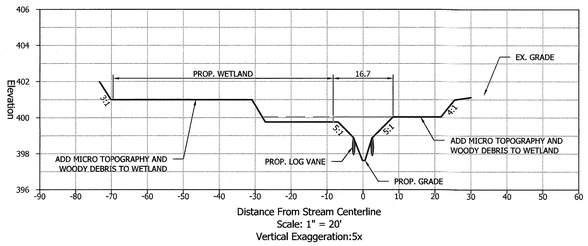
Scale: 1" = 20'
Vertical Exaggeration:5x

RIFFLE CROSS-SECTION (REACH 2) @ STA. 4+52



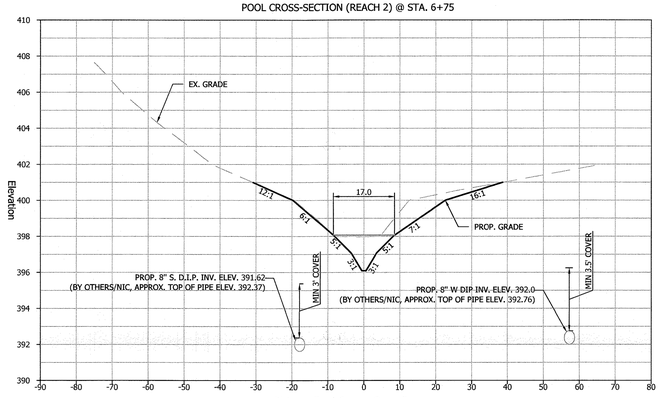
Scale: 1" = 20'
Vertical Exaggeration:5x

LOG VANE CROSS SECTION (REACH 2) @ STA. 5+79



Scale: 1" = 20'
Vertical Exaggeration:5x

POOL CROSS-SECTION (REACH 2) @ STA. 6+75



Scale: 1" = 20'
Vertical Exaggeration:5x

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways MK — Date 05/26/2020

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6/16/2020

Chief, Development Engineering Division — Date 6.8.20

THIS SHEET IS BEING ADDED TO THE PLAN SET AS PART OF REVISION #1 INDICATED ON SHEETS 1 THROUGH 84. THE PURPOSE OF THIS PLAN IS TO PROVIDE INFORMATION NEEDED FOR THE STREAM MITIGATION CONSTRUCTION.

PREPARED FOR:
WESTMOUNT DEVELOPMENT CORP.
307 INTERNATIONAL CIRCLE, SUITE 130
HUNT VALLEY, MD 21030
ATTENTION: ROBERT GOODIER

WESTMOUNT
PHASE II, III, & IV

STREAM MITIGATION PLAN
DESIGN SHEET
10575 FREDERICK ROAD, ELLICOTT CITY , MD 21042

STATE OF MARYLAND — AMELIA S. REECE — 30815 — PROFESSIONAL ENGINEER — 4/17/2020

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REVISIONS

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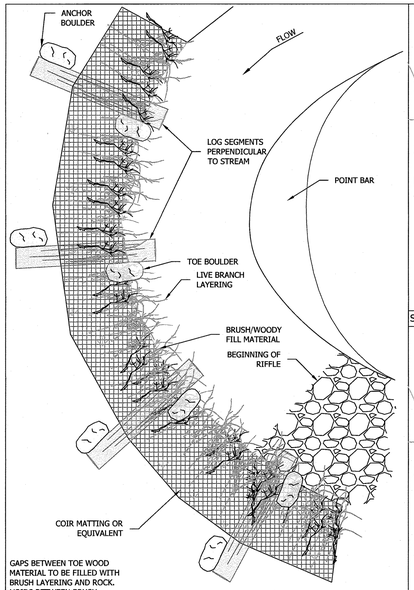
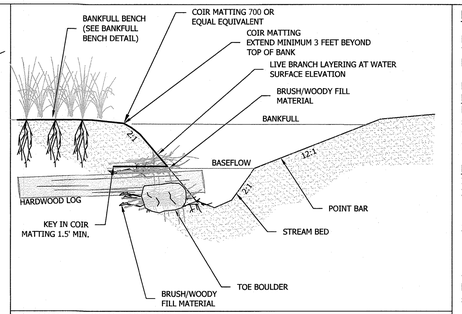
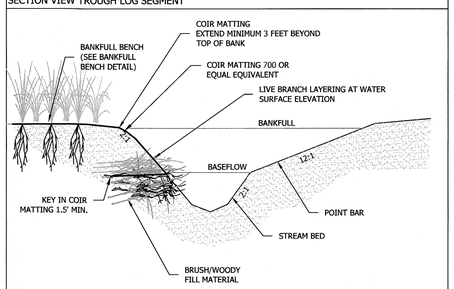


PLAN VIEW



SECTION VIEW TROUGH LOG SEGMENT



SECTION VIEW TROUGH BRUSH/WOODY MATERIAL

LOG SEGMENT TOEWOOD N.T.S

SOIL STABILIZATION MATTING INSTALLATION

DESCRIPTION
This work shall consist of installing soil stabilization matting.
Soil stabilization matting is to be installed concurrently with installation of Riffle Grade
Control Structure.

MATERIALS
Soil Stabilization Matting
Matting shall be woven machine spun bristle coir twine made of coir fiber obtained from fresh water cured coconut husks. Soil stabilization matting shall conform to the "Soil Stabilization Chart".

CONSTRUCTION
Soil Stabilization Matting:
1. Final grade stream banks to proposed dimension and slope per the grading plan.
2. Seed streambank areas with proposed permanent and temporary seed mix per the planting plan.
3. Matting shall be laid smoothly and firmly upon the seeded bed in the direction of the water flow. Excessive stretching shall be avoided.
4. Where more than one width of matting is required, the ends of each strip shall overlap at least 1 foot for both vertical and horizontal overlaps. Overlapping shall be done with the up-slope matting overlapping the down-slope matting and the upstream matting overlapping the downstream matting.
5. Matting shall be firmly fastened in place with stakes driven vertically into the soil and flush with the surface. Stakes shall be placed on 4- foot centers throughout the matting and along the edges of the matting.
6. The contractor shall excavate a shallow trench along the up-slope, down-slope, and vertical edges of the matting at both the upstream and downstream edges of the matting. The matting shall be keyed into the trench a minimum of 6 inches. Following the installation of the stakes, the matting trenches shall be backfilled with soil (or stream bed material if keying in within the channel) and tamped firmly.

LOG CROSS VANE INSTALLATION

DESCRIPTION
This work shall consist of installing a log cross vane structure to provide grade control, bank stability, and minimize near bank stress.

MATERIALS
Logs
Logs shall be hardwood species, have a minimum length as indicated on the "Log Cross Vane Chart", and a minimum diameter of 12 inches. All material shall be free of rot and evidence of pests. All branches and root mass shall be removed. Estimated design log life to be 10-20 years, vegetation will have time to establish around before logs decompose.

Backfill Substrate Material
Backfill material shall conform to riffle substrate specifications.

Anchor Boulders
Anchor boulders shall consist of Class II Riprap or equivalent salvaged boulders found on site.

Soil Stabilization Matting
1. Matting shall be woven machine spun bristle coir twine made of coir fiber obtained from fresh water cured coconut husks.
2. Soil stabilization matting shall conform to the "Soil Stabilization Matting Specifications" chart.

CONSTRUCTION
1. Rough grade channel and floodplain areas prior to installing logs.
2. Excavate trench for vane log so that tip of log will be flush with proposed stream bed elevation at thalweg and log ties into the bank at approximately 0.5' below bankfull elevation.
3. Install vane log and backfill with riffle substrate material. Ensure that all voids have been filled on the upstream side of log and beneath.
4. Excavate trench for opposing vane log.
5. Install log with tip at same elevation as previously installed log and bank tie in point at same elevation as first log. Logs shall be notched so that the lowest point is at the tip where the logs meet. Secure log tips with a 3 foot section of rebar.
6. Backfill remaining areas with riffle substrate material, ensuring that all voids have been filled.
7. Grade banks, seed and mulch per bank treatment specifications and details.

LOG SEGMENT TOEWOOD INSTALLATION

DESCRIPTION
This work shall consist of installing log segment structures to provide bank stability, minimize near bank stress, maintain low width/depth ratio, and enhance aquatic habitat.

MATERIALS
Log Segment Material
Material shall consist of woody material such as large limbs, branches, brush, and logs. Logs shall be solid hardwood with minimum trunk diameter of 10 inches. Logs shall have a minimum length of 10 feet. All material shall be free of rot and evidence of pests. Estimated design log life to be 10-20 years, vegetation will have time to establish around before logs decompose.

Live Branch Material
1. Live branch cuttings shall be approximately 1.5 inch in diameter.
2. Cuttings shall be 24-36" in length and long enough to extend a minimum of 1 foot and maximum of 18 inches from the rebuilt slope face. Side branches and bark shall remain intact prior to installation.
3. Live branch cuttings shall consist of a mix of three or more of the following species as shown on the "Live Branch Plant List" shown on Planting Plans, with at least one willow (*salix*) and one dogwood (*cornus*) species included. Each species shall comprise no more than 50% and no less than 20% of the mix.
4. Anchor/ Toe Boulder: Class II riprap

NOTE: When not in dormancy period (Dec. 1 to Apr.1), livestakes shall be substituted with tubelings spaced 1 per foot.

Soil
Soil material shall consist of top soil salvaged from within the construction limits or supplied topsoil that meets the specifications for topsoil in the Sediment and Erosion Control Plans.

Soil Stabilization Matting
1. Matting shall be woven machine spun bristle coir twine made of coir fiber obtained from fresh water cured coconut husks.
2. Soil stabilization matting (Coir 700 or equivalent) shall conform to the "Soil Stabilization Chart".

CONSTRUCTION
Live Material Preparation:
1. All cuts shall be smooth and the cut surface kept small. The use of large pruning shears or power saws may be required.
2. Live materials not installed within 8 hours of harvesting shall be protected against drying out and overheating. Protection against drying out shall be accomplished by keeping the material covered, transported in unheated vehicles, moistened and/or kept in soak pits.
3. Storage of live materials shall include continuous shade by covering with evergreen branches or plastic sheeting. Proper storage shall also include sheltering live plant material from the wind and protection from drying by being heeled into moist soils and/or sprayed with anti-transpirant chemicals. Where water is available, live branch cuttings shall be sprayed or immersed.
4. Live materials shall be installed the same day that the cuttings are harvested. If installation of live materials cannot be accomplished on the same day and storage is required, live materials shall be stored for a period no longer than 2 days in cold storage.

Log Segment and Branch Layering Installation
1. Excavate channel bed and outside bank to a subgrade depth that allows for thickness of proposed log segments (when complete, baseflow water height should match or be slightly higher that the height of the installed log segments). Excavation width into the bank shall be a minimum of 5 feet from proposed toe.
2. At proposed log segment locations, excavate a wider trench into bank that allows for proposed length of log segments.
3. Place log segments into proposed locations. Spacing of log segments shall be per spacing chart. Log segments shall not protrude more than 1 foot past proposed toe.
4. Place the boulder on the downstream side of log segment and an anchor boulder on the upstream end.
5. Small woody material (limbs, branches, brush) shall be placed in between previously installed log segments, Height of woody material shall match height of log segments.
6. Place a thin layer of backfill (0.2' max) over woody material to form a planting bed for live branch material.
7. Place live branch material over backfill such that 2/3 of the branch will be covered with soil and 1/3 of the branch is exposed, extending out beyond the face of the bank. Live branches placed minimum 3/ft with growing tops facing out.
8. A layer of topsoil backfill shall be placed on top of the branches and compacted such that soil completely fills all voids between all the branches.
9. Regrade stream bank above branch layering to a subgrade elevation that allows for the placement of sod matting (0.5'-0.75' typ.). Create a 2:1 slope (typ.) on the face and also a bankfull bench per the detail above and typical cross sections.
10. Install sod matting or coir matting 700 or equivalent beginning at the start of the woody fill material to the end of the bankfull bench.
11. On the opposite side (inside of the meander) of the toe wood, grade point bar to match typical pool cross section. Seed and straw to stabilize.

Alternatively (at the Contractor's discretion):
Sod matting can be wrapped in soil stabilization matting. Follow "Soil Stabilization Matting Detail".

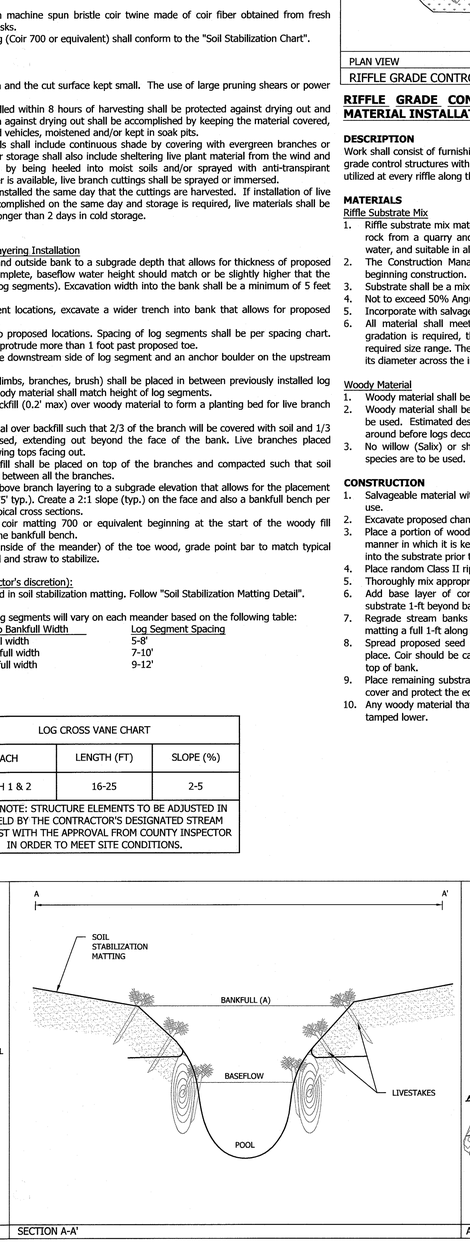
NOTE: The spacing of log segments will vary on each meander based on the following table:

Ratio of Radius to Bankfull Width	Log Segment Spacing
<2x bankfull width	5-8'
2-2.5x bankfull width	7-10'
>2.5x bankfull width	9-12'

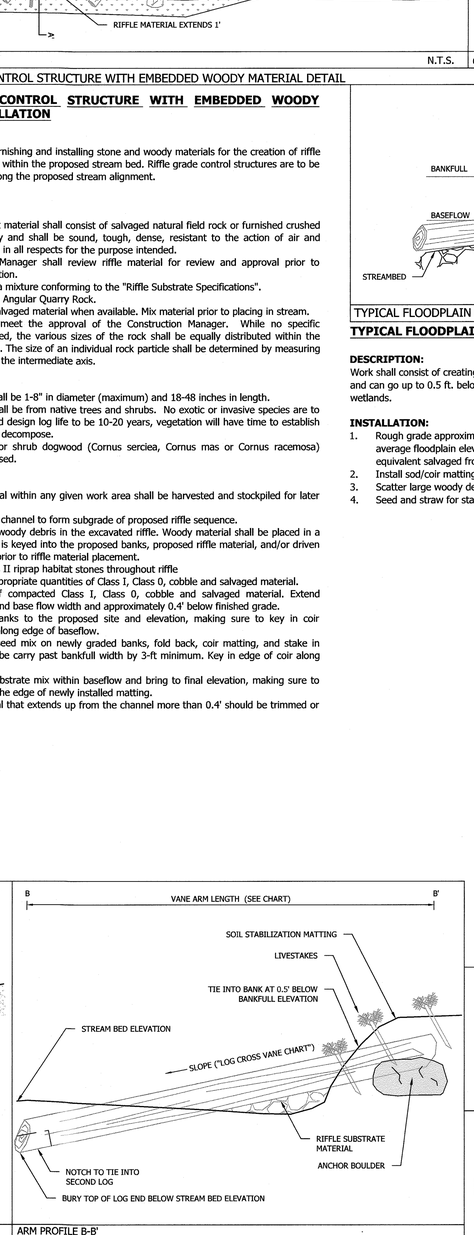
LOG CROSS VANE CHART		
REACH	LENGTH (FT)	SLOPE (%)
REACH 1 & 2	16-25	2-5
DESIGN NOTE: STRUCTURE ELEMENTS TO BE ADJUSTED IN THE FIELD BY THE CONTRACTOR'S DESIGNATED STREAM SPECIALIST WITH THE APPROVAL FROM COUNTY INSPECTOR IN ORDER TO MEET SITE CONDITIONS.		

SOIL STABILIZATION MATTING DETAIL N.T.S

PLAN VIEW

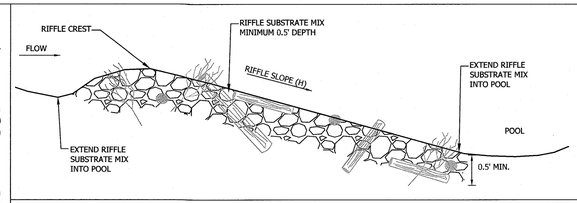


SECTION A-A'

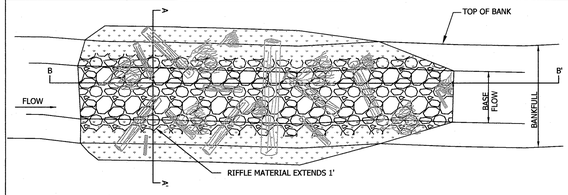


ARM PROFILE B-B'

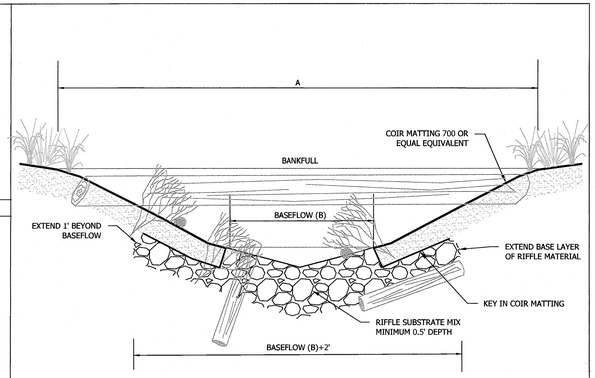
LOG CROSS VANE DETAIL N.T.S.



PROFILE B - B' N.T.S.



PLAN VIEW N.T.S.



CROSS SECTION A - A' N.T.S.

RIFFLE GRADE CONTROL STRUCTURE WITH EMBEDDED WOODY MATERIAL DETAIL

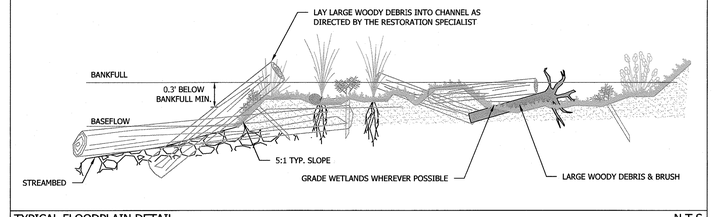
RIFFLE GRADE CONTROL STRUCTURE WITH EMBEDDED WOODY MATERIAL INSTALLATION

DESCRIPTION
Work shall consist of furnishing and installing stone and woody materials for the creation of riffle grade control structures within the proposed stream bed. Riffle grade control structures are to be utilized at every riffle along the proposed stream alignment.

MATERIALS
Riffle Substrate Mix
1. Riffle substrate mix material shall consist of salvaged natural field rock or furnished crushed rock from a quarry and shall be sound, tough, dense, resistant to the action of air and water, and suitable in all respects for the purpose intended.
2. The Construction Manager shall review riffle material for review and approval prior to beginning construction.
3. Substrate shall be a mixture conforming to the "Riffle Substrate Specifications".
4. Not to exceed 50% Angular Quarry Rock.
5. Incorporate with salvaged material when available. Mix material prior to placing in stream.
6. All material shall meet the approval of the Construction Manager. While no specific gradation is required, the various sizes of the rock shall be equally distributed within the required size range. The size of an individual rock particle shall be determined by measuring its diameter across the intermediate axis.

Woody Material
1. Woody material shall be 1-8" in diameter (maximum) and 18-48 inches in length.
2. Woody material shall be from native trees and shrubs. No exotic or invasive species are to be used. Estimated design log life to be 10-20 years, vegetation will have time to establish around before logs decompose.
3. No willow (Salix) or shrub dogwood (Cornus serciea, Cornus mas or Cornus racemosa) species are to be used.

CONSTRUCTION
1. Salvageable material within any given work area shall be harvested and stockpiled for later use.
2. Excavate proposed channel to form subgrade of proposed riffle sequence.
3. Place a portion of woody debris in the excavated riffle. Woody material shall be placed in a manner in which it is keyed into the proposed banks, proposed riffle material, and/or driven into the substrate prior to riffle material placement.
4. Place random Class II riprap habitat stones throughout riffle
5. Thoroughly mix appropriate quantities of Class I, Class 0, cobble and salvaged material.
6. Add base layer of compacted Class I, Class 0, cobble and salvaged material. Extend substrate 1-ft beyond base flow width and approximately 0.4' below finished grade.
7. Regrade stream banks to the proposed site and elevation, making sure to key in coir matting a full 1-ft along edge of baseflow.
8. Spread proposed seed mix on newly graded banks, fold back, coir matting, and stake in place. Coir should be carry past bankfull width by 3-ft minimum. Key in edge of coir along top of bank.
9. Place remaining substrate mix within baseflow and bring to final elevation, making sure to cover and protect the edge of newly installed matting.
10. Any woody material that extends up from the channel more than 0.4' should be trimmed or tamped lower.



TYPICAL FLOODPLAIN DETAIL N.T.S

TYPICAL FLOODPLAIN DETAIL

DESCRIPTION:
Work shall consist of creating an active vegetated floodplain. The floodplain, when wetlands are present, will be an average of 0.3 ft below bankfull elevation, and can go up to 0.5 ft. below bankfull elevation. Creating variability within the floodplain will be achieved by roughing the grade and excavating pocket wetlands.

INSTALLATION:
1. Rough grade approximately 0.3 - 0.5 ft. below bankfull elevation up until tie out slope at max 3:1. Grade in pocket wetlands approximately 0.3 ft. below average floodplain elevation. Incorporate organics into soil when grading microtopography. Organic material shall consist of leaves, wood chips, brush, or equivalent salvaged from onsite.
2. Install sod/coir matting starting at edge of baseflow up bank until the edge of bankfull bench.
3. Scatter large woody debris, brush material, and if peat layer is present, spread peat within pocket wetland areas.
4. Seed and straw for stabilization.

Soil Stabilization Matting Specifications		
Property	Test Method	CoirMat 700
Weight	ASTM D 3776	20.6 oz/SY
Thickness	ASTM D 1777	0.3 inch
Dry Tensile Strength		
Machine Direction	ASTM D 4595	1512 lbs/sf
Cross Direction		1032 lbs/sf
Wet Tensile Strength		
Machine Direction	ASTM D 4595	924 lbs/sf
Cross Direction		684 lbs/sf
Open Area	Calulated	50%

RIFFLE SUBSTRATE SPECIFICATION

Use existing stream bed material. If existing material does not meet the following size specifications, supplement with angular quarry rock so that the D50 is made to meet the following size:

STREAM STATION	D50
0+00-6+28	5.0 IN.

STATE OF MARYLAND — SARAH'S REED — No. 22815 — PROFESSIONAL ENGINEER — 5/7/20

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways MK — Date 05/26/2020

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 6/16/2020
Chief, Development Engineering Division — Date 6.8.20

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307 INTERNATIONAL CIRCLE, SUITE 130
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PHASE II, III, & IV
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X:\Projects\2017 Projects\17-15-065 - Westmount Stream\CAD\17-15-065-LAYOUT-STREAM_FINAL.dwg SMCKEY

SHEET NOTES:

1. L.O.D. SHALL BE PERMANENTLY STABILIZED WITH SSM AND SEED MIX, EXCEPT WHERE NOTED AND WHERE AREAS HAVE NOT BEEN DISTURBED.
2. TREES TO REMAIN WITHIN L.O.D. WHERE POSSIBLE.

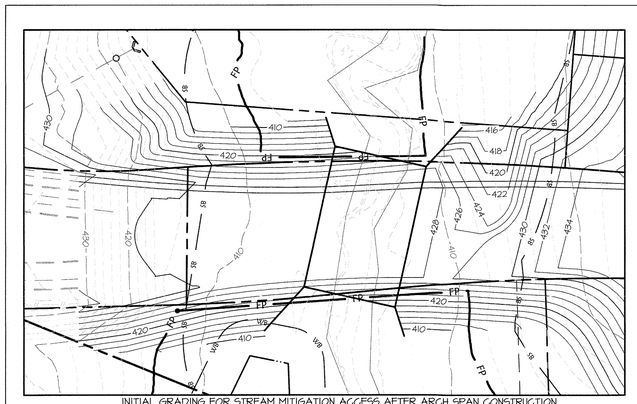
PERMANENT SEEDING SUMMARY

Hardiness Zone = 7a
Seed Mixture = Cool Season (FEB 15 - APR 30; AUG 15 - OCT 31)

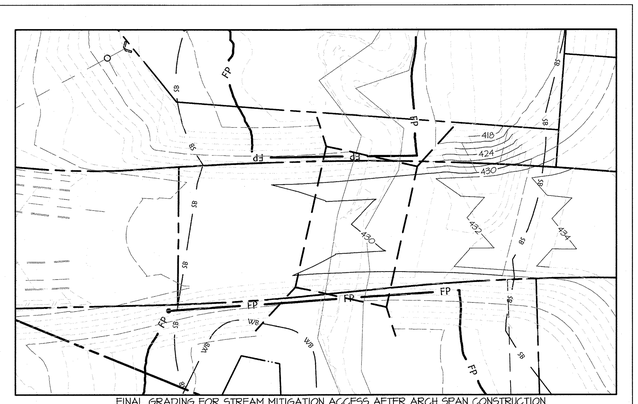
No.	Species*	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	Fertilizer Rate (10-20-20) N	P_2O_5	K_2O	Lime Rate
9	Tall Fescue *(Lolium arundinaceum)*	60 lb/ac (1.38 lb /1000 sf)	Feb 15 - Apr 30 Aug 15 - Oct 31	¼ - ½ in.	45 lb/ac (1.0 lb /1000 sf)	90 lb/ac (2 lb /1000 sf)	90 lb/ac (2 lb /1000 sf)	2 tons/ac (90 lb /1000 sf)
	Kentucky Bluegrass *(Poa pratensis)*	40 lb/ac (0.92 lb /1000 sf)		¼ - ½ in.				
	Perennial Ryegrass *(Lolium perenne)*	20 lb/ac (0.46 lb /1000 sf)		¼ - ½ in.				

TEMPORARY SEEDING SUMMARY

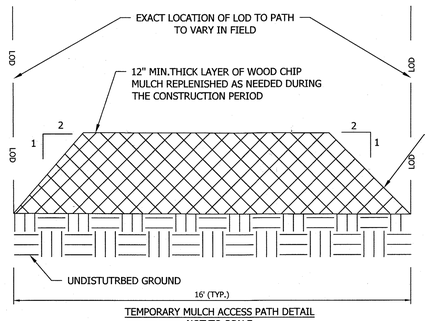
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	FERTILIZER RATE (10-20-20)	LIME RATE
HARDINESS ZONE = 7A SEED MIXTURE = COOL SEASON (FEB 15 - APR 30; AUG 15 - NOV 30)					436 LB/AC (10 LB /1000 SF)	2 TONS/AC (90 LB /1000 SF)
	ANNUAL RYEGRASS *(LOLIUM PERENNE)*	40 LB/AC (1.0 LB /1000 SF)	FEB 15 - APR 30; AUG 15 - NOV 30	0.5 IN.		
	BARLEY *(HORDEUM VULGARE)*	96 LB/AC (2.2 LB /1000 SF)	FEB 15 - APR 30; AUG 15 - NOV 30	1.0 IN.		
	OATS *(AVENA SATIVA)*	72 LB/AC (1.7 LB /1000 SF)	FEB 15 - APR 30; AUG 15 - NOV 30	1.0 IN.		
	WHEAT *(TRITICUM AESTIVUM)*	120 LB/AC (2.8 LB /1000 SF)	FEB 15 - APR 30; AUG 15 - NOV 30	1.0 IN.		
	CEREAL RYE *(SECALE CEREALE)*	112 LB/AC (2.8 LB /1000 SF)	FEB 15 - APR 30; AUG 15 - DEC 15	1.0 IN.		
HARDINESS ZONE = 7A SEED MIXTURE = WARM SEASON (MAY 1 - AUG 14)						
	FOXTAIL MILLET *(SETARIA ITALICA)*	30 LB/AC (0.7 LB /1000 SF)	MAY 1 - AUG 14	0.5 IN.		
	PEARL MILLET *(PENNISETUM GLAUCUM)*	20 LB/AC (0.5 LB /1000 SF)	MAY 1 - AUG 14	0.5 IN.		



INITIAL GRADING FOR STREAM MITIGATION ACCESS AFTER ARCH SPAN CONSTRUCTION
SCALE: 1" = 50'



FINAL GRADING FOR STREAM MITIGATION ACCESS AFTER ARCH SPAN CONSTRUCTION
SCALE: 1" = 50'



TEMPORARY MULCH ACCESS PATH DETAIL
NOT TO SCALE

TEMPORARY MULCH ACCESS PATH DETAIL NOTES:

1. ACCESS ROUTES TO BE VERIFIED BY ENGINEER AT PRE-CONSTRUCTION MEETING. MINOR ADJUSTMENTS TO THE ALIGNMENT THAT MINIMIZES TREE DISTURBANCE ARE ENCOURAGED AND REQUIRE REVIEW AND APPROVAL BY ENGINEER AND THE SEDIMENT CONTROL INSPECTOR.
2. AS FIELD CONDITIONS WARRANT, ADDITIONAL WOOD CHIP MULCH (EXCEEDING THE MINIMUM 12") MAY BE REQUIRED AT THE DISCRETION OF THE SEDIMENT CONTROL INSPECTOR TO AVOID RUTTING OF THE SOIL SURFACE.
3. SWAMP MATS ARE REQUIRED WHEN CROSSING WETLANDS.
4. CONTRACTOR SHALL MAINTAIN MULCH MAT THROUGHOUT CONSTRUCTION PERIOD. UPON COMPLETION OF THE PROJECT, MULCH CAN REMAIN IN PLACE, BEING SPREAD THROUGHOUT THE SITE AT A MAXIMUM DEPTH OF 2". THE CONTRACTOR MUST ENSURE THAT THIS PROCESS IS DONE THROUGHOUT THE GRADING PROCESS, IN A MANOR WHICH ENSURES PROPOSED GRADES ARE MET AND MAINTAINED, WITHOUT DISTURBANCE TO FINAL SEEDING AND PLANTING OF THE SITE.
5. SCARIFICATION OF COMPACTED MULCH TO OCCUR UPON REMOVAL OF ACCESS PATH, AT DIRECTION OF THE ENGINEER. IF SOILS ARE EXPOSED AND RUTTED BELOW MULCH MATTING, CONTRACTOR TO ADDRESS ACCORDINGLY TO RESTORE NATURAL CONDITIONS. STABILIZE ALL EXPOSED SOIL WITH APPROPRIATE PERMANENT SEED MIX, AS DEFINED IN THE LANDSCAPE PLANS. SOIL STABILIZATION MATTING MAY BE REQUIRED AT THE DISCRETION OF THE SEDIMENT CONTROL INSPECTOR TO STABILIZE SLOPED AREAS.
6. THE ACCESS PATH IS DESIGNED TO PREVENT COMPACTION OF EXISTING SOILS USING LOW PRESSURE EQUIPMENT WHICH EXERTS NO MORE THAN 12 PSI. IF THE CONTRACTOR INTENDS TO USE ANY EQUIPMENT WITH HIGHER LOADS, ADDITIONAL PROTECTION MEASURES MUST BE PROVIDED, AT NO ADDITIONAL COST TO THE COUNTY, AND THOSE MEASURES MUST BE APPROVED BY THE ENGINEER PRIOR TO IMPLEMENTATION.

THIS SHEET IS BEING ADDED TO THE PLAN SET AS PART OF REVISION #1 INDICATED ON SHEETS 1 THROUGH 84. THE PURPOSE OF THIS PLAN IS TO PROVIDE INFORMATION NEEDED FOR THE STREAM MITIGATION CONSTRUCTION.

PREPARED FOR: WESTMOUNT DEVELOPMENT CORP.
307 INTERNATIONAL CIRCLE, SUITE 130
HUNT VALLEY, MD 21030
ATTENTION: ROBERT GOODIER

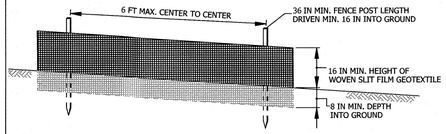
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways MK — Date 05/26/2020

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development — Date 6/10/2020
Chief, Development Engineering Division — Date 6.8.20

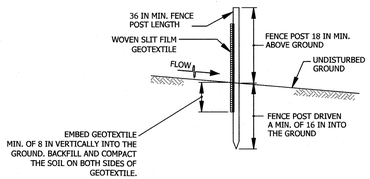
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
Approved Howard SCD — 5/13/20

DETAIL E-1 SILT FENCE

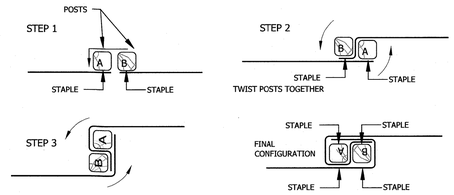
STANDARD SYMBOL: SF



ELEVATION



CROSS SECTION



JOINING TWO ADJACENT SILT FENCE SECTIONS (TOP VIEW)

1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL		
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-1 SILT FENCE

STANDARD SYMBOL: SF

CONSTRUCTION SPECIFICATIONS

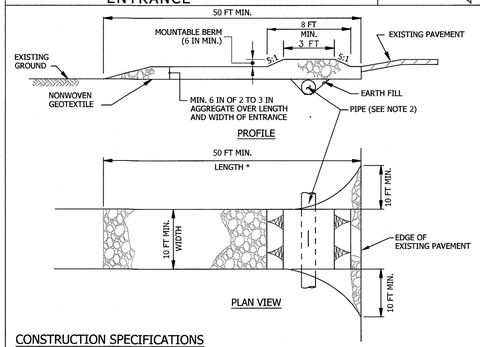
1. USE WOOD POSTS 1⅜ X 1⅜ ± 1/16 INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
2. USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
3. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
4. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
5. EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
6. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
7. EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
8. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL		
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE



CONSTRUCTION SPECIFICATIONS

1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL		
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

B-4-8 STANDARDS AND SPECIFICATIONS

FOR

STOCKPILE AREA

Definition

A mound or pile of soil protected by appropriately designed erosion and sediment control measures.

Purpose

To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and changes to drainage patterns.

Conditions Where Practice Applies

Stockpile areas are utilized when it is necessary to salvage and store soil for later use.

Criteria

1. The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan.
2. The footprint of the stockpile must be sized to accommodate the anticipated volume of material and based on a side slope ratio no steeper than 2:1. Benching must be provided in accordance with Section B-3 Land Grading.
3. Runoff from the stockpile area must drain to a suitable sediment control practice.
4. Access the stockpile area from the upgrade side.
5. Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary swale or diversion fence. Provisions must be made for discharging concentrated flow in a non-erosive manner.
6. Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sediment control practice must be used to intercept the discharge.
7. Stockpiles must be stabilized in accordance with the 3/7 day stabilization requirement as well as Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization.
8. If the stockpile is located on an impervious surface, a liner should be provided below the stockpile to facilitate cleanup. Stockpiles containing contaminated material must be covered with impermeable sheeting.

Maintenance

The stockpile area must continuously meet the requirements for Adequate Vegetative Establishment in accordance with Section B-4 Vegetative Stabilization. Side slopes must be maintained at no steeper than a 2:1 ratio. The stockpile area must be kept free of erosion. If the vertical height of a stockpile exceeds 20 feet for 2:1 slopes, 30 feet for 3:1 slopes, or 40 feet for 4:1 slopes, benching must be provided in accordance with Section B-3 Land Grading.

WESTMOUNT PHASE II, III, & IV

STREAM MITIGATION PLAN NOTES & DETAILS
EROSION & SEDIMENT CONTROL PLANS
10575 FREDERICK ROAD, ELLICOTT CITY , MD 21042

STATE OF MARYLAND — VICTORIA S. REED — 50819 — PROFESSIONAL ENGINEER — 4/17/20

ecotone
ecological restoration
129 Industry Lane · Forest Hill, Maryland 21050
(410) 420 2600 · www.ecotoneinc.com

REVISIONS			
No.	DATE	DESCRIPTION	REV. BY

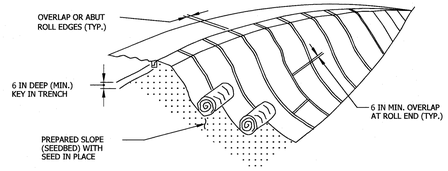
CHECKED BY: SFM
DESIGNED: CRH
DRAWN: SJM
PROJECT No.: 17-15-065
DATE: 4/13/2020
SHEET:

89 of 92
E&S PLAN SHEET 3 OF 5

F 17-001

DETAIL B-4-6-B TEMPORARY SOIL STABILIZATION MATTING SLOPE APPLICATION

STANDARD SYMBOL: TSSMS - ≥ 1.5 lb/ft²



ISOMETRIC VIEW

CONSTRUCTION SPECIFICATIONS

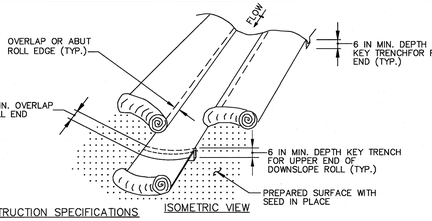
1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SMOLDER RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION & SEDIMENT CONTROL PLAN.
5. UNROLL MATTING DOWNSLOPE. LAY MAT SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. OVERLAP OR ABUT ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSLOPE MAT OVERLAPPING ON TOP OF THE DOWNSLOPE MAT.
7. KEY IN THE UPSLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-4-6-A TEMPORARY SOIL STABILIZATION MATTING CHANNEL APPLICATION

STANDARD SYMBOL: TSSMC - ≥1.5 lb/ft²



ISOMETRIC VIEW

CONSTRUCTION SPECIFICATIONS

1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SMOLDER RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
5. UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTERLINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MAT SMOOTHLY AND FIRMLY ON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. KEY-IN UPSTREAM END OF EACH MAT ROLL BY DIGGING A 6 INCH (MINIMUM) TRENCH AT THE UPSTREAM END OF THE MATTING, PLACING THE ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END.
7. OVERLAP OR ABUT THE ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways MK — Date 05/26/2020

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

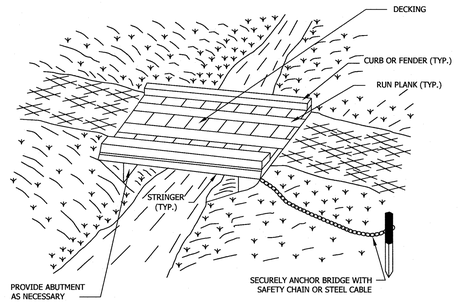
Chief, Division of Land Development — Date 6/1/2020

Chief, Development Engineering Division — Date 6.8.20

X:\Projects\2017 Projects\17-15-065 - Westmount Stream\CAD\17-15-065-LAYOUT-STREAM_F3NAL.dwg SHOSEY

DETAIL H-4-1 TEMPORARY ACCESS BRIDGE

STANDARD SYMBOL: TB



LOCATION PLAN

NOTE:
TIME OF YEAR RESTRICTIONS DO NOT APPLY TO THE CONSTRUCTION OR REMOVAL OF A TEMPORARY ACESS BRIDGE UNLESS THERE IS DISTURBANCE TO THE STREAM CHANNEL.

1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

B-4-1 STANDARDS AND SPECIFICATIONS FOR INCREMENTAL STABILIZATION

Definition

Establishment of vegetative cover on cut and fill slopes.

Purpose

To provide timely vegetative cover on cut and fill slopes as work progresses.

Conditions Where Practice Applies

Any cut or fill slope greater than 15 feet in height. This practice also applies to stockpiles.

Criteria

A. Incremental Stabilization - Cut Slopes
   1. Excavate and stabilize cut slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all cut slopes as the work progresses.
   2. Construction sequence example (Refer to Figure B.1):
      a. Construct and stabilize all temporary swales or dikes that will be used to convey runoff around the excavation.
      b. Perform Phase 1 excavation, prepare seedbed, and stabilize.
      c. Perform Phase 2 excavation, prepare seedbed, and stabilize. Overseed Phase 1 areas as necessary.
      d. Perform final phase excavation, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary.

Note: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

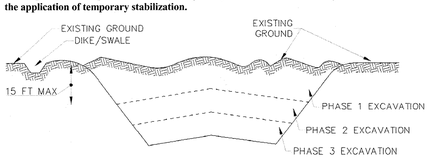


Figure B.1: Incremental Stabilization – Cut

B.10

DETAIL H-4-1 TEMPORARY ACCESS BRIDGE

STANDARD SYMBOL: TB

CONSTRUCTION SPECIFICATIONS

1. CONSTRUCT TEMPORARY BRIDGE STRUCTURE AT OR ABOVE THE BANK ELEVATION TO PREVENT IMPACTS FROM FLOATING MATERIALS AND DEBRIS.
2. PLACE ABUTMENTS PARALLEL TO, AND ON, STABLE BANKS.
3. CONSTRUCT BRIDGE TO SPAN ENTIRE CHANNEL UNLESS OTHERWISE INDICATED ON APPROVED PLAN.
4. USE STRINGERS CONSISTING OF LOGS, SAWN TIMBER, PRESTRESSED CONCRETE BEAMS, METAL BEAMS, OR OTHER APPROVED MATERIALS.
5. SELECT DECKING MATERIALS TO PROVIDE SUFFICIENT STRENGTH TO SUPPORT THE ANTICIPATED LOAD. PLACE ALL DECKING MEMBERS PERPENDICULAR TO THE STRINGERS, BUTT TIGHTLY, AND SECURELY FASTEN. DECKING MATERIALS MUST BE BUTTED TIGHTLY TO PREVENT ANY SOIL MATERIAL TRACKED ONTO THE BRIDGE FROM FALLING INTO THE WATERWAY BELOW.
6. SECURELY FASTEN OPTIONAL RUN PLANKING FOR THE LENGTH OF THE SPAN. PROVIDE A RUN PLANK FOR EACH TRACK OF THE EQUIPMENT WHEELS. ALTHOUGH RUN PLANKS ARE OPTIONAL, THEY MAY BE NECESSARY TO PROPERLY DISTRIBUTE LOADS.
7. INSTALL CURBS THE ENTIRE LENGTH OF THE OUTER SIDES OF THE DECK TO PREVENT SEDIMENT FROM ENTERING THE STREAM CHANNEL.
8. ANCHOR BRIDGE SECURELY AT ONLY ONE END USING STEEL CABLE OR CHAIN. ANCHORING AT ONLY ONE END WILL PREVENT CHANNEL OBSTRUCTION IN THE EVENT THAT FLOODWATERS FLOAT THE BRIDGE. ACCEPTABLE ANCHORS ARE LARGE TREES, LARGE BOULDERS, OR DRIVEN STEEL POSTS. ANCHOR MUST BE SUFFICIENT TO PREVENT THE BRIDGE FROM FLOATING DOWNSTREAM.
9. AREAS DISTURBED DURING BRIDGE INSTALLATION AND/OR REMOVAL MUST NOT BE LEFT UNSTABILIZED OVERNIGHT UNLESS THE RUNOFF IS DIRECTED TO AN APPROVED SEDIMENT CONTROL DEVICE.
10. STABILIZE APPROACH TO BRIDGE AND KEEP FREE OF EROSION. CLEAN SEDIMENT FROM DECKING AND CURBS DAILY BY SCRAPING, SWEEPING, AND/OR VACUUMING. ENSURE THAT DECKING AND CURBS REMAIN TIGHTLY BUTTED WITHOUT GAPS. REMOVE DEBRIS TRAPPED BY BRIDGE. MAINTAIN AREAS ADJACENT TO CROSSING TO CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.
11. AFTER THE TEMPORARY CROSSING IS NO LONGER NEEDED, REMOVE IT WITHIN 14 CALENDAR DAYS. IF SUBJECT TO THE USE DESIGNATION CLOSURE, REMOVE AT THE END OF CLOSURE PERIOD. PROTECT STREAM BANKS DURING BRIDGE REMOVAL AND STABILIZE ALL DISTURBED AREAS WITH EROSION CONTROL MATTING. ACCOMPLISH REMOVAL OF THE BRIDGE AND CLEAN UP OF THE AREA WITHOUT CONSTRUCTION EQUIPMENT WORKING IN THE WATERWAY CHANNEL. STORE ALL REMOVED MATERIALS IN AN APPROVED STAGING AREA.

2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

B. Incremental Stabilization - Fill Slopes
   1. Construct and stabilize fill slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all slopes as the work progresses.
   2. Stabilize slopes immediately when the vertical height of a lift reaches 15 feet, or when the grading operation ceases as prescribed in the plans.
   3. At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.
   4. Construction sequence example (Refer to Figure B.2):
      a. Construct and stabilize all temporary swales or dikes that will be used to divert runoff around the fill. Construct silt fence on low side of fill unless other methods shown on the plans address this area.
      b. At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.
      c. Place Phase 1 fill, prepare seedbed, and stabilize.
      d. Place Phase 2 fill, prepare seedbed, and stabilize.
      e. Place final phase fill, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary.

Note: Once the placement of fill has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

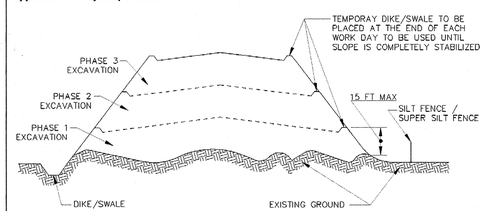
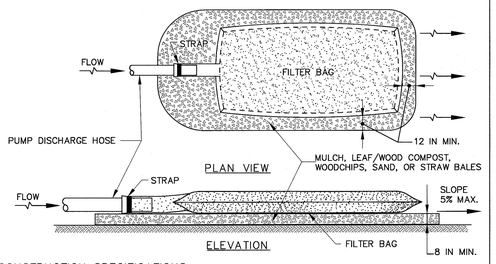


Figure B.2: Incremental Stabilization – Fill

B.11

DETAIL F-4 FILTER BAG

STANDARD SYMBOL: ☒FB



CONSTRUCTION SPECIFICATIONS

1. TIGHTLY SEAL SLEEVE AROUND THE PUMP DISCHARGE HOSE WITH A STRAP OR SIMILAR DEVICE.
2. PLACE FILTER BAG ON SUITABLE BASE (E.G., MULCH, LEAF/WOOD COMPOST, WOODCHIPS, SAND, OR STRAW BALES) LOCATED ON A LEVEL OR 5% MAXIMUM SLOPING SURFACE. DISCHARGE TO A STABILIZED AREA. EXTEND BASE A MINIMUM OF 12 INCHES FROM EDGES OF BAG.
3. CONTROL PUMPING RATE TO PREVENT EXCESSIVE PRESSURE WITHIN THE FILTER BAG IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATIONS. AS THE BAG FILLS WITH SEDIMENT, REDUCE PUMPING RATE.
4. REMOVE AND PROPERLY DISPOSE OF FILTER BAG UPON COMPLETION OF PUMPING OPERATIONS OR AFTER BAG HAS REACHED CAPACITY, WHICHEVER OCCURS FIRST. SPREAD THE DEWATERED SEDIMENT FROM THE BAG IN AN APPROVED UPLAND AREA AND STABILIZE WITH SEED AND MULCH BY THE END OF THE WORK DAY. RESTORE THE SURFACE AREA BENEATH THE BAG TO ORIGINAL CONDITION UPON REMOVAL OF THE DEVICE.
5. USE NONWOVEN GEOTEXTILE WITH DOUBLE STITCHED SEAMS USING HIGH STRENGTH THREAD. SIZE SLEEVE TO ACCOMMODATE A MAXIMUM 4 INCH DIAMETER PUMP DISCHARGE HOSE. THE BAG MUST BE MANUFACTURED FROM A NONWOVEN GEOTEXTILE THAT MEETS OR EXCEEDS MINIMUM AVERAGE ROLL VALUES (MARV) FOR THE FOLLOWING:

GRAB TENSILE	250 LB	ASTM D-4632
PUNCTURE	150 LB	ASTM D-4833
FLOW RATE	70 GAL/MIN/FT²	ASTM D-4491
PERMITTIVITY (SEC^{-1})	1.2 SEC^{-1}	ASTM D-4491
UV RESISTANCE	70% STRENGTH @ 500 HOURS	ASTM D-4355
APPARENT OPENING SIZE (AOS)	0.15-0.18 MM	ASTM D-4751
SEAM STRENGTH	90%	ASTM D-4632

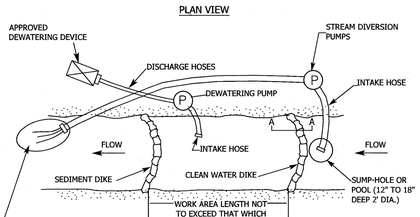
6. REPLACE FILTER BAG IF BAG CLOGS OR HAS RIPS, TEARS, OR PUNCTURES. DURING OPERATION KEEP CONNECTION BETWEEN PUMP HOSE AND FILTER BAG WATER TIGHT. REPLACE BEDDING IF IT BECOMES DISPLACED.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

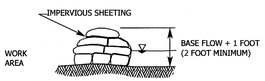
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 1.2: PUMP-AROUND PRACTICE

PLAN VIEW



SECTION A-A



CROSS SECTION OF SANDBAG DIKE

PUMP-AROUND PRACTICE

DESCRIPTION:
The work shall consist of installing a temporary pump and supporting measures to divert flow around instream construction sites.

IMPLEMENTATION SEQUENCE:
Sediment control measures, pump-around practices, and associated channel and bank construction shall be completed in the following sequence (refer to Detail 1.2): PUMP-AROUND PRACTICE.
1. Construction activities including the installation of erosion and sediment control measures shall not begin until all necessary easements and/or right-of-ways have been acquired. All existing utilities shall be marked in the field prior to construction. The contractor will be responsible for any damage to existing utilities that may result from construction and shall repair the damage at his/her own expense to the county's or utility company's satisfaction.
2. The contractor shall notify the Maryland Department of the Environment or WMA sediment control inspector at least 5 days before beginning construction. Additionally, the contractor shall inform the local environmental protection and resource management inspection and enforcement division and the provider of local utilities a minimum of 48 hours before starting construction.
3. The contractor shall conduct a pre-construction meeting on site with the WMA sediment control inspector, the county project manager, and the engineer to review the limits of disturbance, erosion and sediment control requirements, and the sequence of construction. The contractor shall stake out all limits of disturbance prior to the pre-construction meeting so they may be reviewed. The participants will also designate the contractor's staging areas and flag all trees within the limit of disturbance which will be removed for construction access. Trees shall not be removed within the limit of disturbance without approval from the WMA or local authority.
4. Construction shall not begin until all sediment and erosion control measures have been installed and approved by the engineer and the sediment control inspector. The contractor shall stay within the limits of the disturbance as shown on the plans and minimize disturbance within the work area whenever possible.
5. Upon installation of all sediment control measures and approval by the sediment control inspector and the local environmental protection and resource management inspection and enforcement division, the contractor shall begin work at the upstream section and proceed downstream beginning with the establishment of stabilized construction entrances. In some cases, work may begin downstream if appropriate. The sequence of construction must be followed unless the contractor gets written approval for deviations from the WMA or local authority. The contractor shall only begin work in an area which can be completed by the end of the day including grading adjacent to the channel. At the end of each work day, the work area must be stabilized and the pump-around removed from the channel. Work shall not be conducted in the channel during rain events.
6. Sandbag dikes shall be situated at the upstream and downstream ends of the work area as shown on the plans, and stream flow shall be pumped around the work area. The pump shall discharge onto a stable velocity dissipater of riprap or sandbags.
7. Water from the work area shall be pumped to a sediment filtering measure such as a dewatering basin, sediment bag, or other approved source. The measure shall be located such that the water drains back into the channel below the downstream sandbag dike.
8. Traversing a channel reach with equipment within the work area where no work is proposed shall be avoided. If equipment has to traverse such a reach for access to another area, then timber mats or similar measures shall be used to minimize disturbance to the channel. Temporary stream crossing shall be used only when necessary and only where noted on the plans or specified. (See Section 4, Stream Crossings, Maryland Guidelines to Waterway Construction).
9. All stream restoration measures shall be installed as indicated by the plans and all banks graded in accordance with the grading plans and typical cross-sections.
10. After an area is completed and stabilized, the clean water dike shall be removed. After the first sediment flush, anew clean water dike shall be established upstream from the old sediment dike. Finally, upon establishment of a new sediment dike below the old one, the old sediment dike shall be removed.
11. A pump-around must be installed on any tributary or storm drain outfall which contributes baseflow to the work area. This shall be accomplished by locating a sandbag dike at the downstream end of the tributary or storm drain outfall and pumping the stream flow around the work area. This water shall discharge onto the same velocity dissipater used for the main stem pump-around.
12. If a tributary is to be restored, construction shall take place on the tributary before work on the main stem reaches the tributary confluence. Construction in the tributary, including pump-around practices, shall follow the same sequence as for the main stem of the river or stream. When construction on the tributary is completed, work on the main stem shall resume. Water from the tributary shall continue to be pumped around the work area in the main stem.
13. The contractor is responsible for providing access to and maintaining all erosion and sediment control devices until the sediment control inspector approves their removal.
14. After construction, all disturbed areas shall be regraded and revegetated.

PUMP-AROUND CAPACITIES		
STREAM	2x BASEFLOW (CFS)	2x BASEFLOW (GPM)
Mainstem	1.0	240

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
Approved — Howard SCD — 5/13/20

	WOVEN SLIT FILM GEOTEXTILE		WOVEN MONOFILAMENT GEOTEXTILE		NONWOVEN GEOTEXTILE	
	MINIMUM AVERAGE ROLL VALUE1					
PROPERTY	TEST METHOD	MD	CD	MD	CD	MD	CD
Grab Tensile Strength	ASTM D-4632	200 lb	200 lb	370 lb	250 lb	200 lb	200 lb
Grab Tensile Elongation	ASTM D-4632	15%	10%	15%	15%	50%	50%
Trapezoidal Tear Strength	ASTM D-4533	75 lb	75 lb	100 lb	60 lb	80 lb	80 lb
Puncture Strength	ASTM D-6241	450 lb		900 lb		450 lb	
Apparent Opening Size2	ASTM D-4751	U.S. Sieve 30 (0.59 mm)		U.S. Sieve 70 (0.21 mm)		U.S. Sieve 70 (0.21 mm)	
Permittivity	ASTM D-4491	0.05 sec -1		0.28 sec -1		1.1 sec -1	
Ultraviolet Resistance Retained at 500 hours	ASTM D-4355	70% strength		70% strength		70% strength	

1. All numeric values except apparent opening size (AOS) represent minimum average roll values (MARV). MARV is calculated as the typical minus two standard deviations. MD is machine direction; CD is cross direction.

2. Values for AOS represent the average maximum opening.

Geotextiles must be evaluated by the National Transportation Product Evaluation Program (NTPEP) and conform to the values in Table H.1.

The geotextile must be inert to commonly encountered chemicals and hydrocarbons and must be rot and mildew resistant. The geotextile must be manufactured from fibers consisting of long chain synthetic polymers and composed of a minimum of 95 percent by weight of polyolefins or polyesters, and formed into a stable network so the filaments or yarns retain their dimensional stability relative to each other, including selvages.

When more than one section of geotextile is necessary, overlap the sections by at least one foot. The geotextile must be pulled taut over the applied surface. Equipment must not run over exposed fabric. When placing riprap on geotextile, do not exceed a one foot drop height.

SHEET NOTES:

1. L.O.D. SHALL BE PERMANENTLY STABILIZED WITH SSM AND SEED MIX, EXCEPT WHERE NOTED AND WHERE AREAS HAVE NOT BEEN DISTURBED.

THIS SHEET IS BEING ADDED TO THE PLAN SET AS PART OF REVISION #1 INDICATED ON SHEETS 1 THROUGH 84. THE PURPOSE OF THIS PLAN IS TO PROVIDE INFORMATION NEEDED FOR THE STREAM MITIGATION CONSTRUCTION.

PREPARED FOR: WESTMOUNT DEVELOPMENT CORP.
307 INTERNATIONAL CIRCLE, SUITE 130
HUNT VALLEY, MD 21030
ATTENTION: ROBERT GOODIER

STATE OF MARYLAND — STEVEN F. MCCOY — 30819 — PROFESSIONAL ENGINEER — 4/17/20

WESTMOUNT PHASE II, III, & IV

STREAM MITIGATION PLAN NOTES & DETAILS
EROSION & SEDIMENT CONTROL PLANS
10575 FREDERICK ROAD, ELLICOTT CITY, MD 21042

REVISIONS			
No.	DATE	DESCRIPTION	REV. BY

ecotone ecological restoration
129 Industry Lane · Forest Hill, Maryland 21050
(410) 420 2600 · www.ecotoneinc.com

CHECKED BY: SFM
DESIGNED: CRH
DRAWN: SJM
PROJECT No.: 17-15-065
DATE: 4/13/2020
SHEET:

90 of 92
E&S PLAN SHEET 4 OF 5

F 17-001

B-4-2 STANDARDS AND SPECIFICATIONS

FOR

SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

Definition

The process of preparing the soils to sustain adequate vegetative stabilization.

Purpose

To provide a suitable soil medium for vegetative growth.

Conditions Where Practice Applies

Where vegetative stabilization is to be established.

Criteria

A. Soil Preparation

1. Temporary Stabilization

a. Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.

b. Apply fertilizer and lime as prescribed on the plans.

c. Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.

2. Permanent Stabilization

a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:

i. Soil pH between 6.0 and 7.0.

ii. Soluble salts less than 500 parts per million (ppm).

iii. Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.

iv. Soil contains 1.5 percent minimum organic matter by weight.

v. Soil contains sufficient pore space to permit adequate root penetration.

b. Application of amendments or topsoil is required if on-site soils do not meet the above conditions.

c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.

d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.

e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

B. Topsoiling

1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

2. Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.

3. Topsoiling is limited to areas having 2:1 or flatter slopes where:

a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.

b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.

c. The original soil to be vegetated contains material toxic to plant growth.

d. The soil is so acidic that treatment with limestone is not feasible.

4. Areas having slopes steeper than 2:1 require special consideration and design.

5. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:

a. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1½ inches in diameter.

b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.

c. Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

6. Topsoil Application

a. Erosion and sediment control practices must be maintained when applying topsoil.

b. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.

c. Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

C. Soil Amendments (Fertilizer and Lime Specifications)

1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.

2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.

3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve.

4. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.

5. Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

B-4-3 STANDARDS AND SPECIFICATIONS

FOR

SEEDING AND MULCHING

Definition

The application of seed and mulch to establish vegetative cover.

Purpose

To protect disturbed soils from erosion during and at the end of construction.

Conditions Where Practice Applies

To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

Criteria

A. Seeding

1. Specifications

a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.

b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws.

c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective.

d. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

2. Application

a. Dry Seeding: This includes use of conventional drop or broadcast spreaders.

i. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries.

ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good seed to soil contact.

b. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.

i. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.

ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.

c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).

i. If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P_2O_5 (phosphorous), 200 pounds per acre; K_2O (potassium), 200 pounds per acre.

ii. Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.

iii. Mix seed and fertilizer on site and seed immediately and without interruption.

iv. When hydroseeding do not incorporate seed into the soil.

B. Mulching

1. Mulch Materials (in order of preference)

a. Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dusty. **Note: Use only sterile straw mulch in areas where one species of grass is desired.**

b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state.

i. WCFM is to be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.

ii. WCFM, including dye, must contain no germination or growth inhibiting factors.

iii. WCFM materials are to be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material must form a blotter-like ground cover, on application, having moisture absorption and percolation properties and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.

iv. WCFM material must not contain elements or compounds at concentration levels that will be phyto-toxic.

v. WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum.

2. Application

a. Apply mulch to all seeded areas immediately after seeding.

b. When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre.

c. Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.

3. Anchoring

a. Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon the size of the area and erosion hazard:

i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should follow the contour.

ii. Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.

iii. Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used. Follow application rates as specified by the manufacturer. Application of liquid binders needs to be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. **Use of asphalt binders is strictly prohibited**.

iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 3,000 feet long.

B-4-5 STANDARDS AND SPECIFICATIONS

FOR

PERMANENT STABILIZATION

Definition

To stabilize disturbed soils with permanent vegetation.

Purpose

To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for 6 months or more.

Criteria

A. Seed Mixtures

1. General Use

a. Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.

b. Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.

c. For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency.

d. For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 ½ pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary .

2. Turfgrass Mixtures

a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.

b. Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.

i. Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.

ii. Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.

iii. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes; Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.

iv. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes, Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1½ to 3 pounds per 1000 square feet.

Notes:
Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland"

Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line

c. Ideal Times of Seeding for Turf Grass Mixtures

Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a)

Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b)

Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b)

d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1½ inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.

e. If soil moisture is deficient, supply new seedings with adequate water for plant growth (½ to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

B. Sod: To provide quick cover on disturbed areas (2:1 grade or flatter).

1. General Specifications

a. Class of turfgrass sod must be Maryland State Certified. Sod labels must be made available to the job foreman and inspector.

b. Sod must be machine cut at a uniform soil thickness of ¾ inch, plus or minus ¼ inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn or uneven ends will not be acceptable.

c. Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.

d. Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.

e. Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation.

2. Sod Installation

a. During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate

3. Sod Maintenance

a. In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to prevent wilting.

b. After the first week, sod watering is required as necessary to maintain adequate moisture content.

c. Do not mow until the sod is firmly rooted. No more than ⅓ of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless otherwise specified.

B-4-4 STANDARDS AND SPECIFICATIONS

FOR

TEMPORARY STABILIZATION

Definition

To stabilize disturbed soils with vegetation for up to 6 months.

Purpose

To use fast growing vegetation that provides cover on disturbed soils.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

Criteria

1. Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan.

2. For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.

3. When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3.A.1.b and maintain until the next seeding season.

B.13

THIS SHEET IS BEING ADDED TO THE PLAN SET AS PART OF REVISION #1 INDICATED ON SHEETS 1 THROUGH 84. THE PURPOSE OF THIS PLAN IS TO PROVIDE INFORMATION NEEDED FOR THE STREAM MITIGATION CONSTRUCTION.

PREPARED FOR: WESTMOUNT DEVELOPMENT CORP.
307 INTERNATIONAL CIRCLE, SUITE 130
HUNT VALLEY, MD 21030
ATTENTION: ROBERT GOODIER

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways MK — Date 05/26/2020

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6/10/2020

Chief, Development Engineering Division — Date 6.8.20

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
Approved Howard SCD — 5/13/20

SHEET NOTES:

1. L.O.D. SHALL BE PERMANENTLY STABILIZED WITH SSM AND SEED MIX, EXCEPT WHERE NOTED AND WHERE AREAS HAVE NOT BEEN DISTURBED.

WESTMOUNT
PHASE II, III, & IV

STREAM MITIGATION PLAN NOTES & DETAILS
EROSION & SEDIMENT CONTROL PLAN
10575 FREDERICK ROAD, ELLICOTT CITY, MD 21042

STATE OF MARYLAND — STEVEN J. MARTIN — 50819 — PROFESSIONAL ENGINEER — 4/17/20

ecotone
ecological restoration
129 Industry Lane · Forest Hill, Maryland 21050
(410) 420 2600 · www.ecotoneinc.com

REVISIONS			
No.	DATE	DESCRIPTION	REV. BY

CHECKED BY: SFM
DESIGNED: CRH
DRAWN: SJM
PROJECT No.: 17-15-065
DATE: 4/13/2020
SHEET:

X:\Projects\2017 Projects\17-15-065 - Westmount Stream\CAD\17-15-065-LAYOUT-STREAM_FINAL.dwg SHOKEY

SITE PLAN

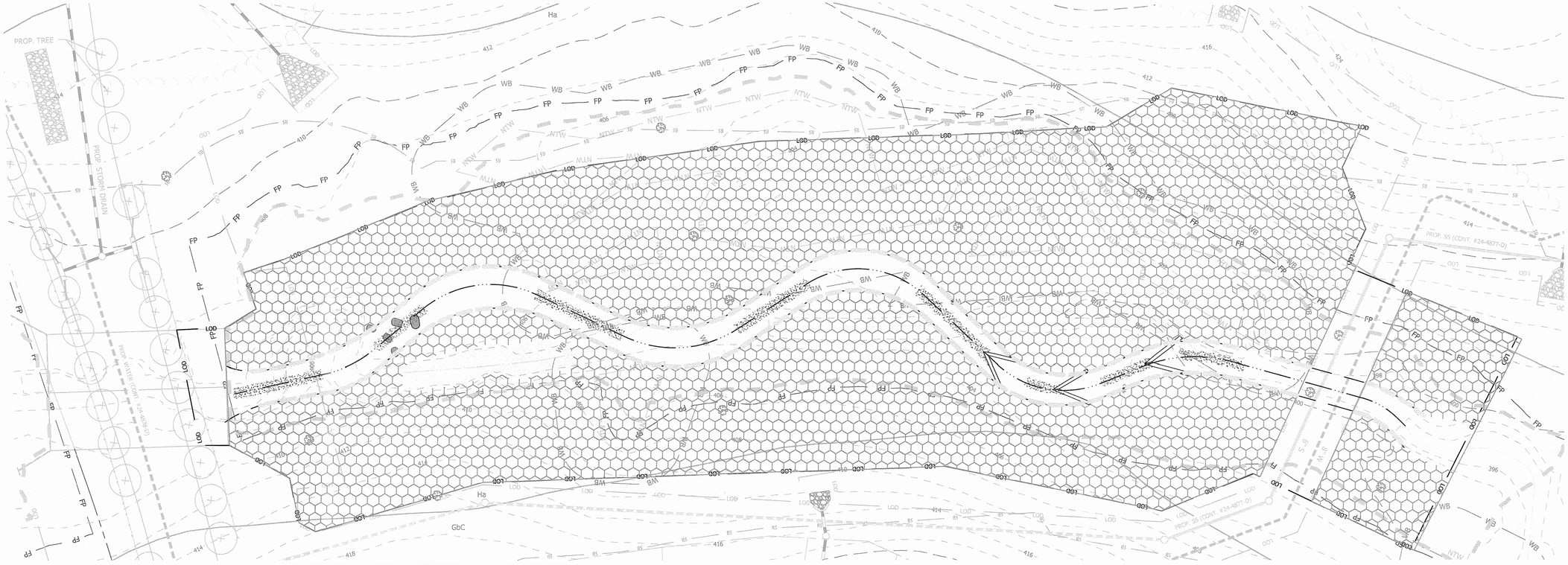
SCALE: 1" = 30'

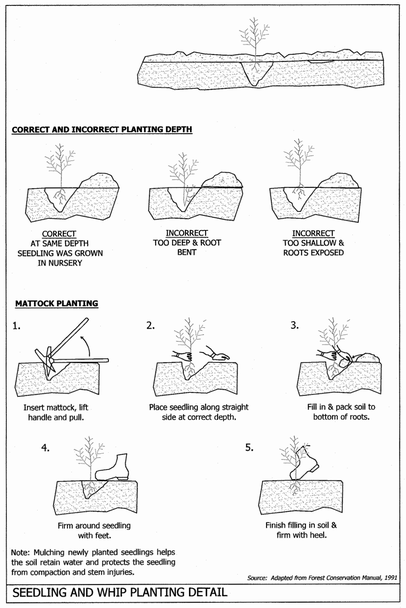
0 30 60 Feet

LEGEND

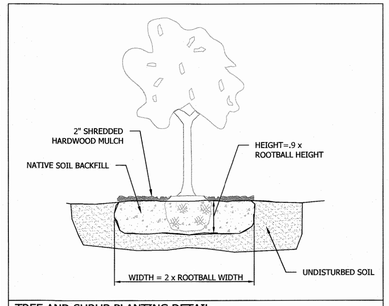
PROPOSED RIPARIAN PLANTING

PROPOSED BIOENGINEERING





SEEDLING AND WHIP PLANTING DETAIL



TREE AND SHRUB PLANTING DETAIL: Container Grown and Balled and Burlapped Stock — N.T.S.

PLANTING SPECIFICATIONS

GENERAL

1. The Contractor shall notify Ecotone, Inc. and the land owner's representative at least two (2) weeks prior to start of planting within the project area so that planting zones may be marked in the field and the land owner can make any necessary preparations related to the agricultural activities on the areas surrounding the project site.
2. The Contractor is responsible for the location of all underground utilities prior to the start of construction. Any damages to utilities as a result of planting or other activities will be the sole responsibility of the Contractor and shall be repaired at the Contractors expense.

STANDARDS

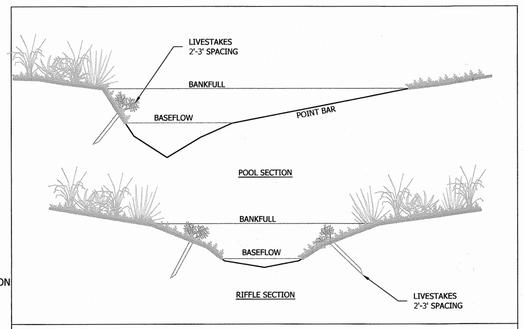
1. Planting material will conform to the current issue of the "American Standards for Nursery Stock", published by the American Association of Nurseryman.
2. The root system of container-grown plant material shall be white, well-developed, and well-distributed throughout the growing media, with the roots extending to the inside face of the container, and the container size must conform to the size specified. Plants not meeting these criteria will be rejected.
3. Foliage of non-dormant plants shall appear healthy, with no leaf spots, damage, discoloration, or wilting, and no evidence of insects on the plant. Plants not meeting these criteria will be rejected.
4. Planting materials may be substituted upon written approval from Ecotone, Inc. and the Maryland Department of the Environment and U.S. Army Corps of Engineers.

STORAGE AND DELIVERY

1. Seed shall be delivered in containers having labels reporting the origin, purity, and germination percentage of the seed, and the date of germination testing of the seed.
2. All container-grown plants shall be clearly and correctly labeled to allow confirmation of species and quantities. At least 25% of each species in every shipment shall have legible labels securely attached prior to delivery to the site.
3. All plants delivered to the project site must have thoroughly moist soil/root masses. Dry or light-weight plants shall be rejected.
4. All rejected material shall be immediately removed from the project site.
5. All plants delivered to the project site shall be stored in a cool, shaded location, and watered regularly so that roots are kept moist until time of planting.

PRODUCTS

1. Straw shall be from small grain species such as wheat or barley, and shall be free of rot, mildew, and noxious weed seeds.



BIOENGINEERING DETAIL — N.T.S

BIOENGINEERING INSTALLATION

DESCRIPTION

This work shall consist of:

1. Placing, harvesting, transporting, installing and maintaining live stake materials. Harvesting, transporting and installing live stakes shall take place during dormant season(December 1 through April 1).

MATERIALS

Live Stakes

1. Live stakes shall be between 0.5 inches and 2 inches in diameter.
2. Stakes shall be 3 to 5 feet in length and all side branches shall be clipped flush with stem.
3. Live stakes shall consist of the species and quantity per the "Live Stake Planting List" as shown on the Planting Plan.

CONSTRUCTION

Live Staking:

1. Live stakes shall be installed two to three (2-3) feet apart using random, triangular spacing. The density of the spacing will range from two (2) to four (4) stakes per square yard. Site variations may require spacing adjustments.
2. The basal end of the cutting shall be cleanly cut at an angle immediately before insertion into the soil. The top of the cutting shall be cut square for tamping.
3. Install the cuttings right side up, with any buds pointing upward. The cuttings shall be tamped into the ground for approximately four-fifths (4/5) of their length. The cuttings shall be tamped into the ground at vertical angle of ninety (90) degrees to the slope and at a horizontal angle of forty-five (45) degrees downstream. A three-eighths (3/8) of an inch iron bar can be used to make a pilot hole in compacted or rocky soils, or between imbricated rip rap boulders.
4. Foot compact around each cutting after it has been installed. Any cuttings that split during tamping shall be pulled out and replaced.
5. The top of the cutting shall be cut square again after installation, to remove the damaged mushroom top.
6. See Planting Plan for species and size specifications.

RIPARIAN PLANTING SCHEDULE (2.4 AC)

	QUANTITY	SCIENTIFIC NAME	COMMON NAME	SIZE	CONDITION	SPACING
	280	Platanus occidentalis	American Sycamore	18 - 24"	Bare-root	11' X 11'
	112	Betula nigra	River Birch	18 - 24"	Bare-root	11' X 11'
	112	Quercus bicolor	Swamp White Oak	18 - 24"	Bare-root	11' X 11'
	112	Aronia arbutifolia	Chokeberry	18 - 24"	Bare-root	11' X 11'
	112	Cornus sericea	Red Osier Dogwood	18 - 24"	Bare-root	11' X 11'
	112	Salix exigua	Sandbar Willow	18 - 24"	Bare-root	11' X 11'
TOTAL SHRUBS	840	NOTE: INSTALLATION = 350 STEMS/AC * 2.4 AC = 840 STEMS				

BIOENGINEERING PLANTING SCHEDULE (1,345 LF)

	QUANTITY	SCIENTIFIC NAME	COMMON NAME	CONDITION	SPACING
LIVE STAKES	299	Cornus ammomum	Silky Dogwood	Live stake	2-3' Trianglular
	299	Salix exigua	Sandbar Willow	Live stake	2-3' Trianglular
	298	Salix nigra	Black Willow	Live stake	2-3' Trianglular
TOTAL	896	NOTE: 1,345 LF of live staking divided by 3' spacing = 448 multiplied by (2 rows) = 896 divided by (3 species) = 298 live stakes of each species.			

PLANTING PROCEDURES

1. Planting shall be performed in accordance with the current edition of the Landscape Contractors Association "Landscape Specification Guidelines" and as specified below.
2. Plants shall be randomly installed within the planting area, using the plant spacing specified in the plant schedule as a guide.
3. Container-grown stock shall be planted during the periods of September 1 - November 15 or April 1 - June 15. Planting outside of these specified dates is not permissible without approval from Ecotone, Inc.
4. Planting shall not occur during periods of sub-freezing temperatures, when the ground is frozen or excessively wet or dry, or when other conditions not generally accepted as suitable for planting persist.
5. For each plant to be installed, excavate a planting hole at least 12 inches wider than the width of the root ball and to a depth which leaves approximately 1/8 of the root ball above existing grade.
6. Remove the plant by cutting or inverting the container.
7. Using a knife or sharp blade, make 4 to 5 one-inch deep vertical cuts along the root ball.
8. Install plant in the center of the hole, with approximately 1/8 of the root ball above surrounding grade.
9. Backfill planting hole with native soil. Any surplus soil remaining after planting shall be evenly scattered around plants.
10. Water each plant thoroughly after backfilling until the backfilled soil is saturated.
11. All woody material must be planted erect. Plants leaning greater than 10 degrees from perpendicular must be straightened or replanted by the Contractor.

SOILS LEGEND

SYMBOL	K FACTOR	SOIL DESCRIPTION
GbB	0.28	Gladstone loam, 3-8% slopes
GbC	0.28	Gladstone loam, 8-15% slopes
GmB	0.37	Glenville silt loam, 3-8% slopes
Ha	0.37	Hatboro-Codorus silt loam, 0-3% slopes
MaD	0.28	Manor loam, 3-8% slopes

PERMANENT SEEDING NOTES:

1. All disturbed areas, Riparian planting area, stream banks, benches and other areas on this plan not otherwise noted with a seed mix shall be seeded with permanent seed (Perennial Rye, Orchard Grass, or equivalent Long Native Grass).
2. Disturbed soil will be seeded and mulched according to ESC Details.

STATE OF MARYLAND — NATALIA S. REED — 22813 — PROFESSIONAL ENGINEER

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways MK — Date 05/26/2020

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Chief, Division of Land Development — Date 6/10/2020

Chief, Development Engineering Division — Date 6.8.20

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307 INTERNATIONAL CIRCLE, SUITE 130
HUNT VALLEY, MD 21030
ATTENTION: ROBERT GOODIER

WESTMOUNT
PHASE II, III, & IV
STREAM MITIGATION PLAN
PLANTING PLAN

10575 FREDERICK ROAD, ELLICOTT CITY , MD 21042

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CHECKED BY: SFM
DESIGNED: CRH
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92 of 92

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